



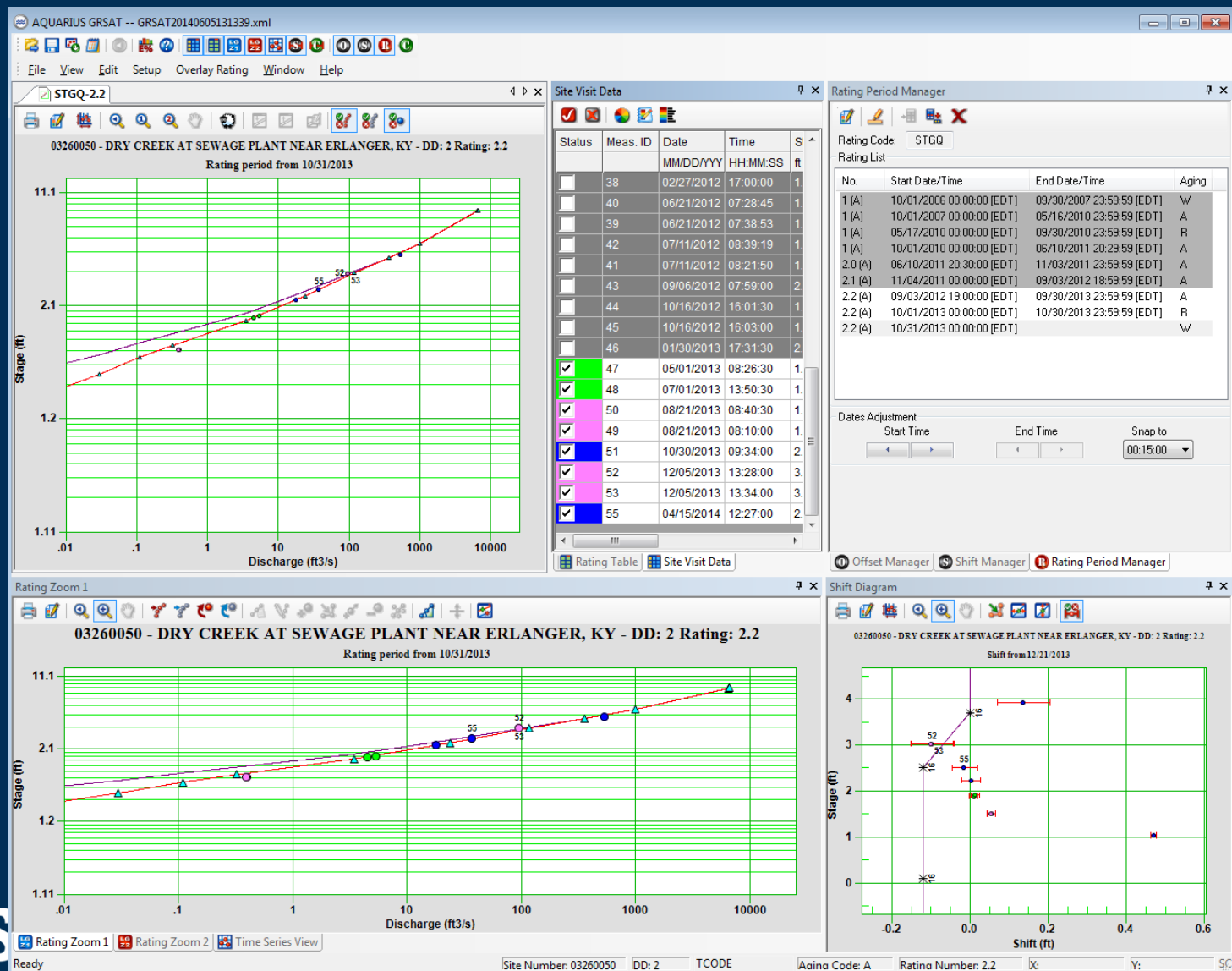
Discharge Ratings and Shifts

A. Thomas Ruby III

Indiana/Kentucky Water Science Center

U.S. Department of the Interior
U.S. Geological Survey

Stage/Discharge Relationship



What is needed for an Stage/Discharge site?

■ Site Selection!!!!

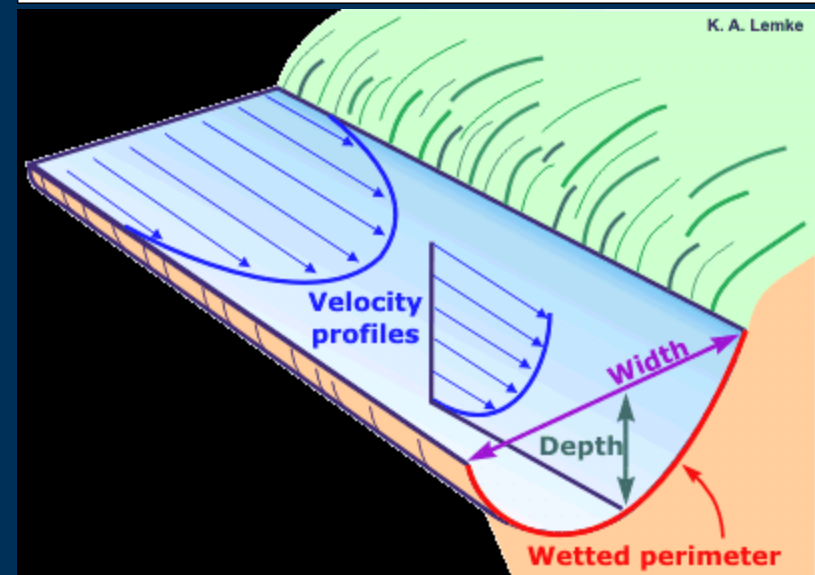
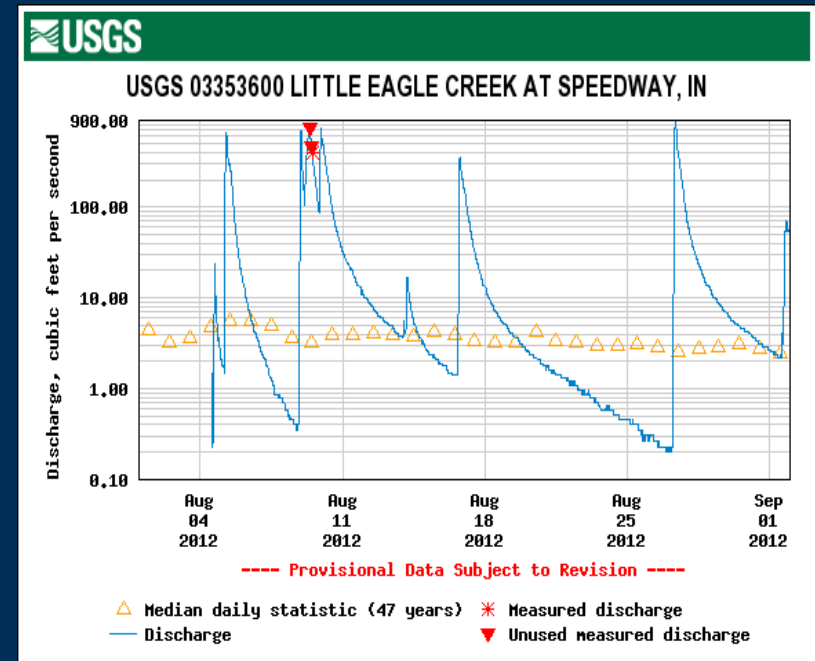
- Site is relatively parallel and uniform
- Near the region of max velocity free from any boundary effects
- Stream is straight for 300ft or 5-10 channel widths
- Located 5-10 channel widths US or DS of any tributary
- Total flow is confined to 1 channel
- Streambed is not subject to scour and fill
- Able to measure discharge at all stages
- Easily accessible for installation and O&M
- Free from air entrainment

Data Collection

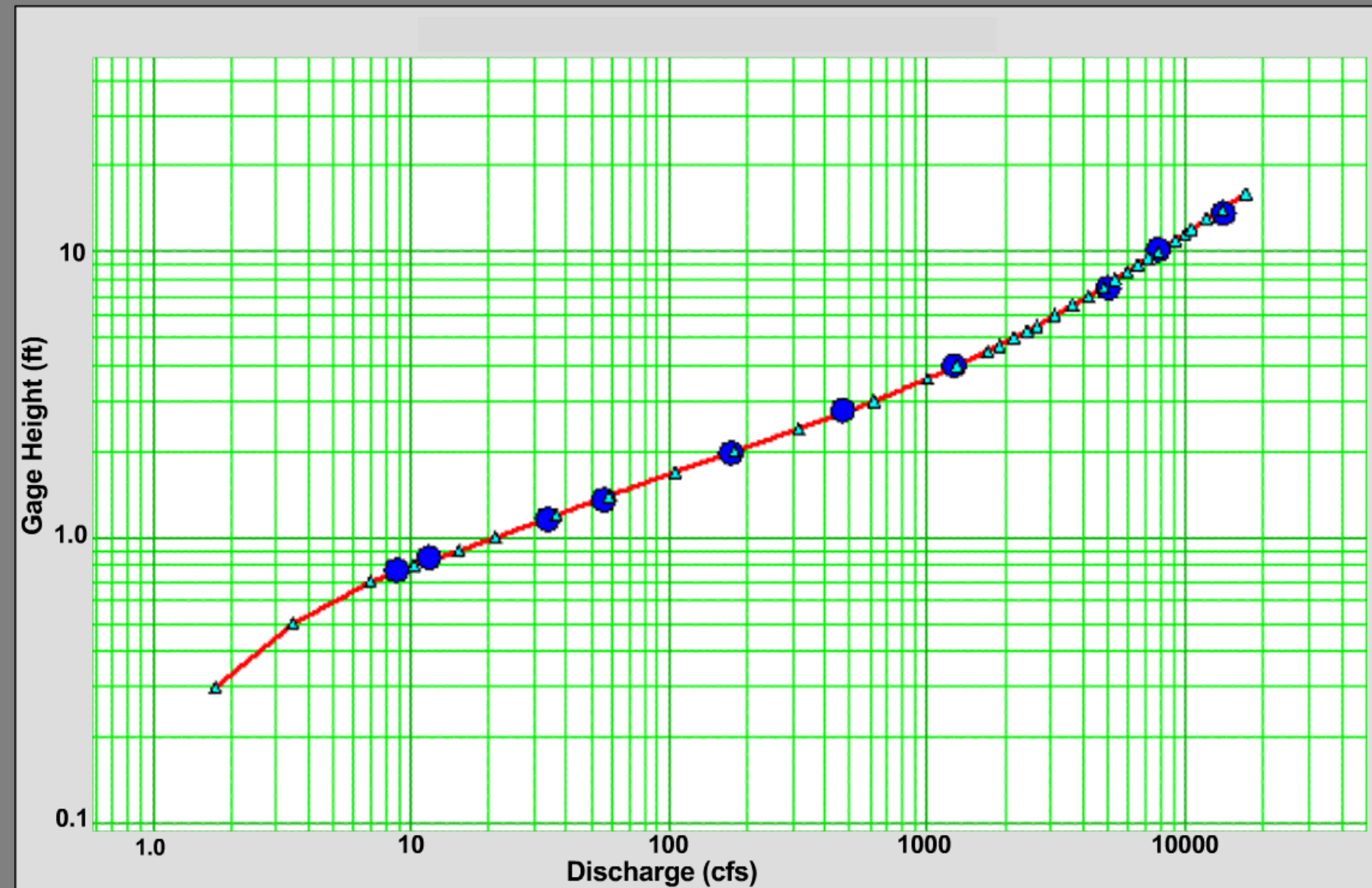
- Compute discharge from stage and cross-section area

- $Q = VA$

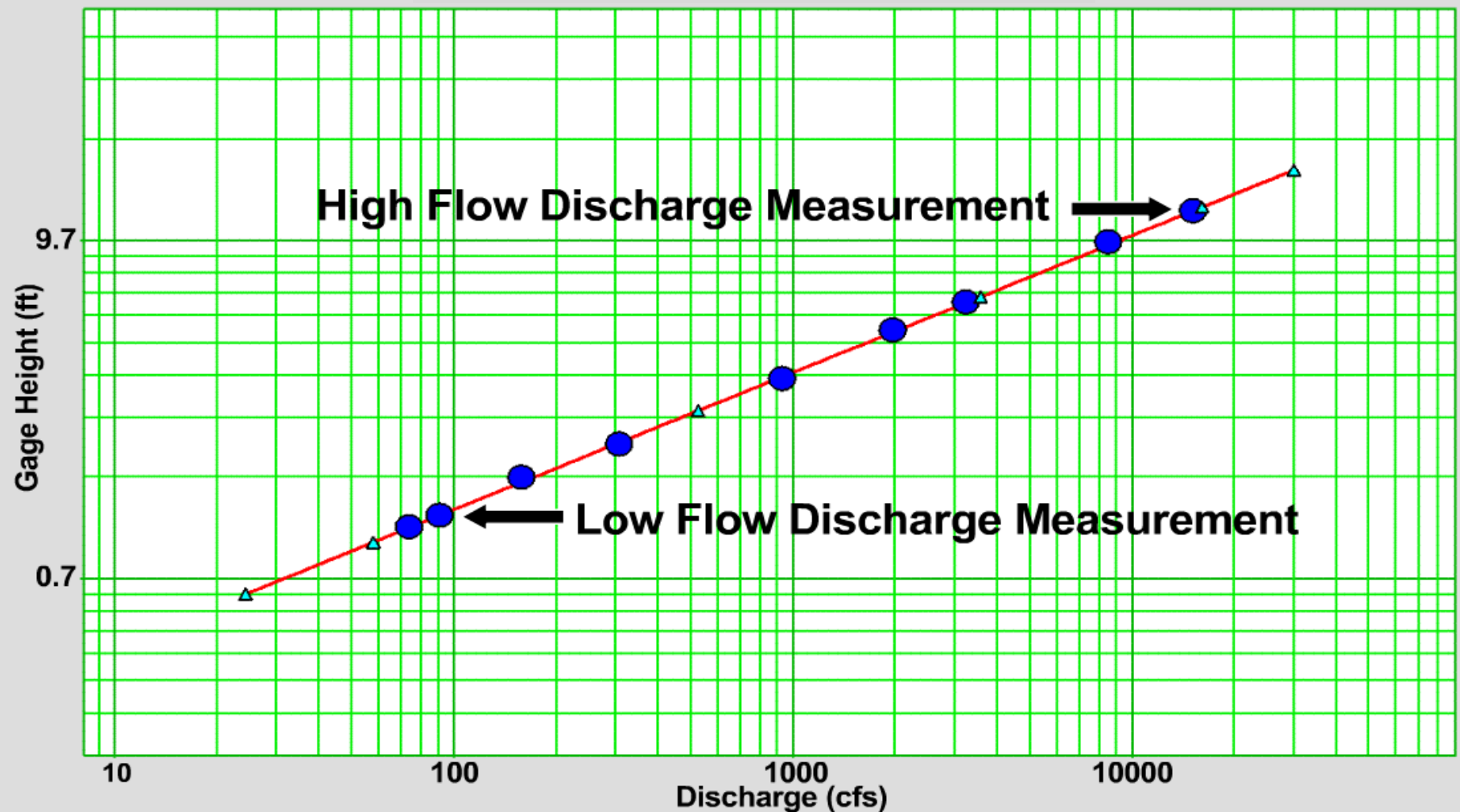
- $A = w \times$



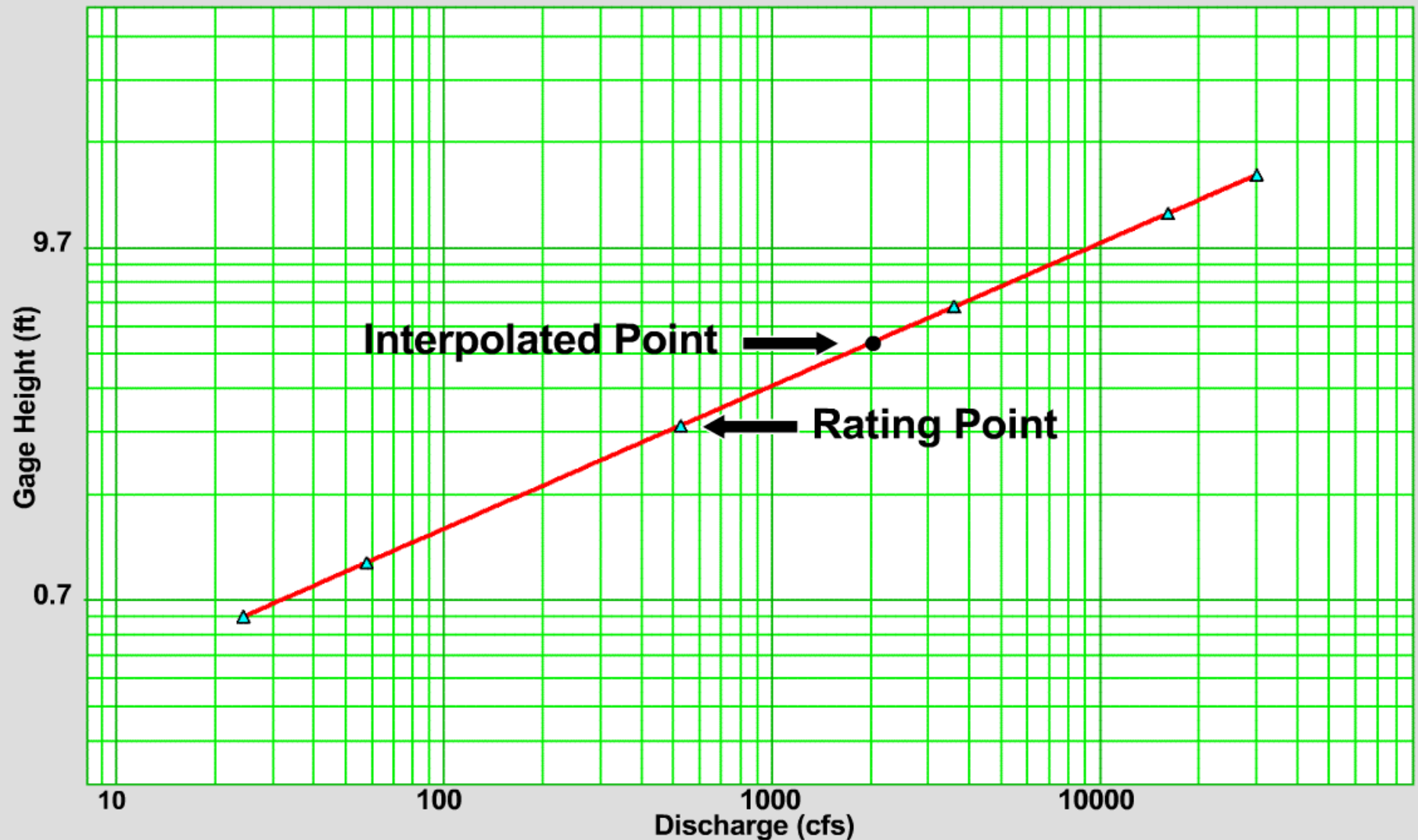
Stage-discharge relations are often referred to as “Ratings”.



Discharge measurements must be made throughout the entire range of stage to accurately define a rating.

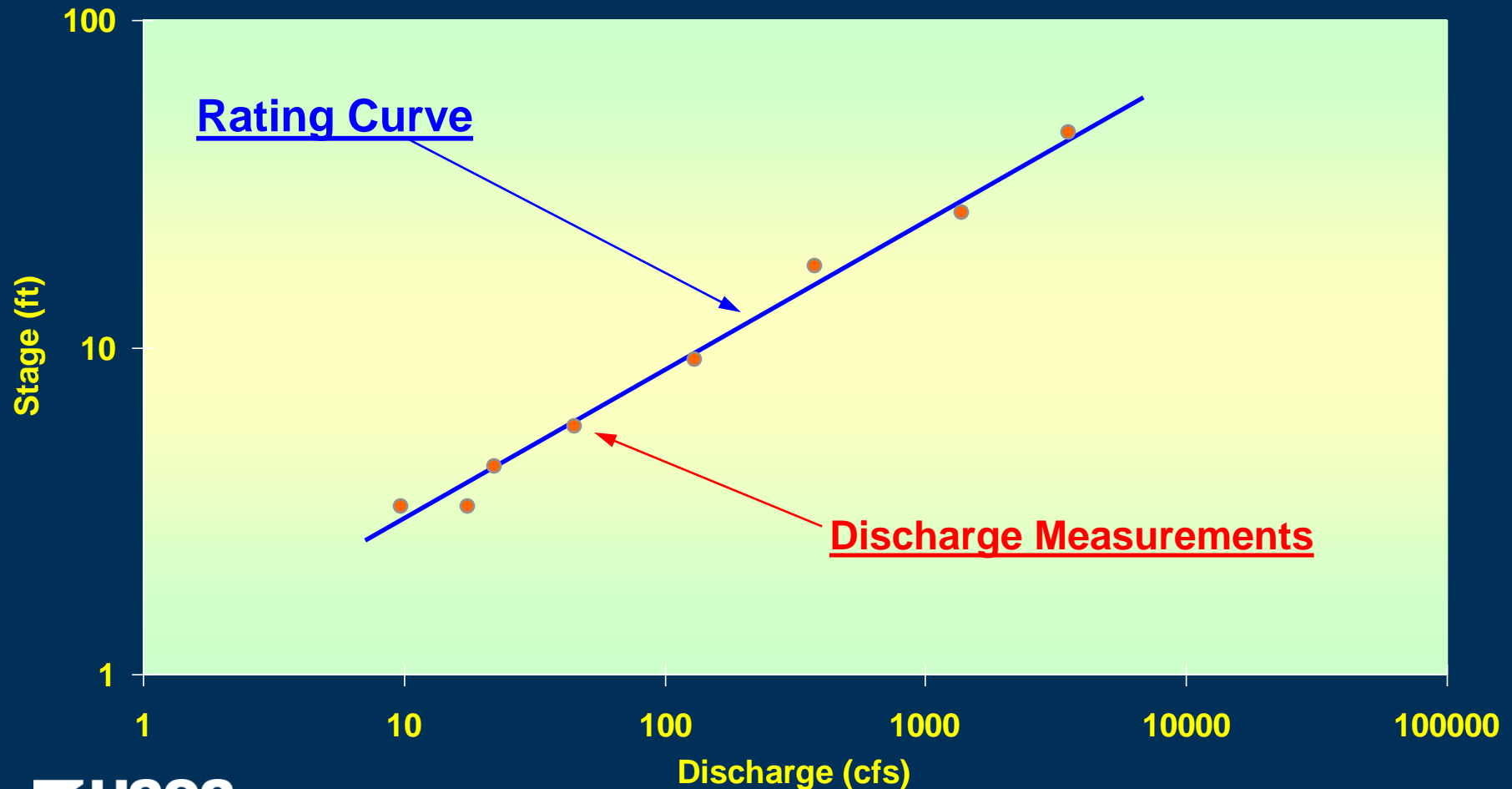


A computer interpolates the stage discharge values between the defined points on the rating.



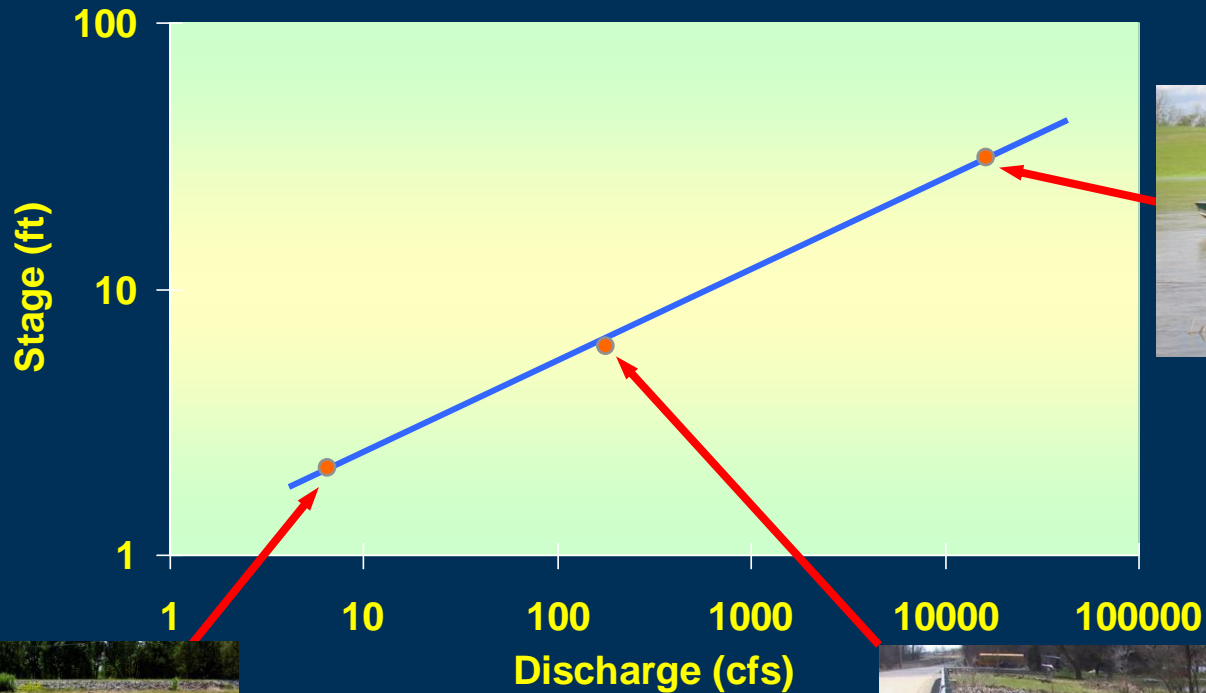
Data Processing

Discharge measurements are used to develop rating curves



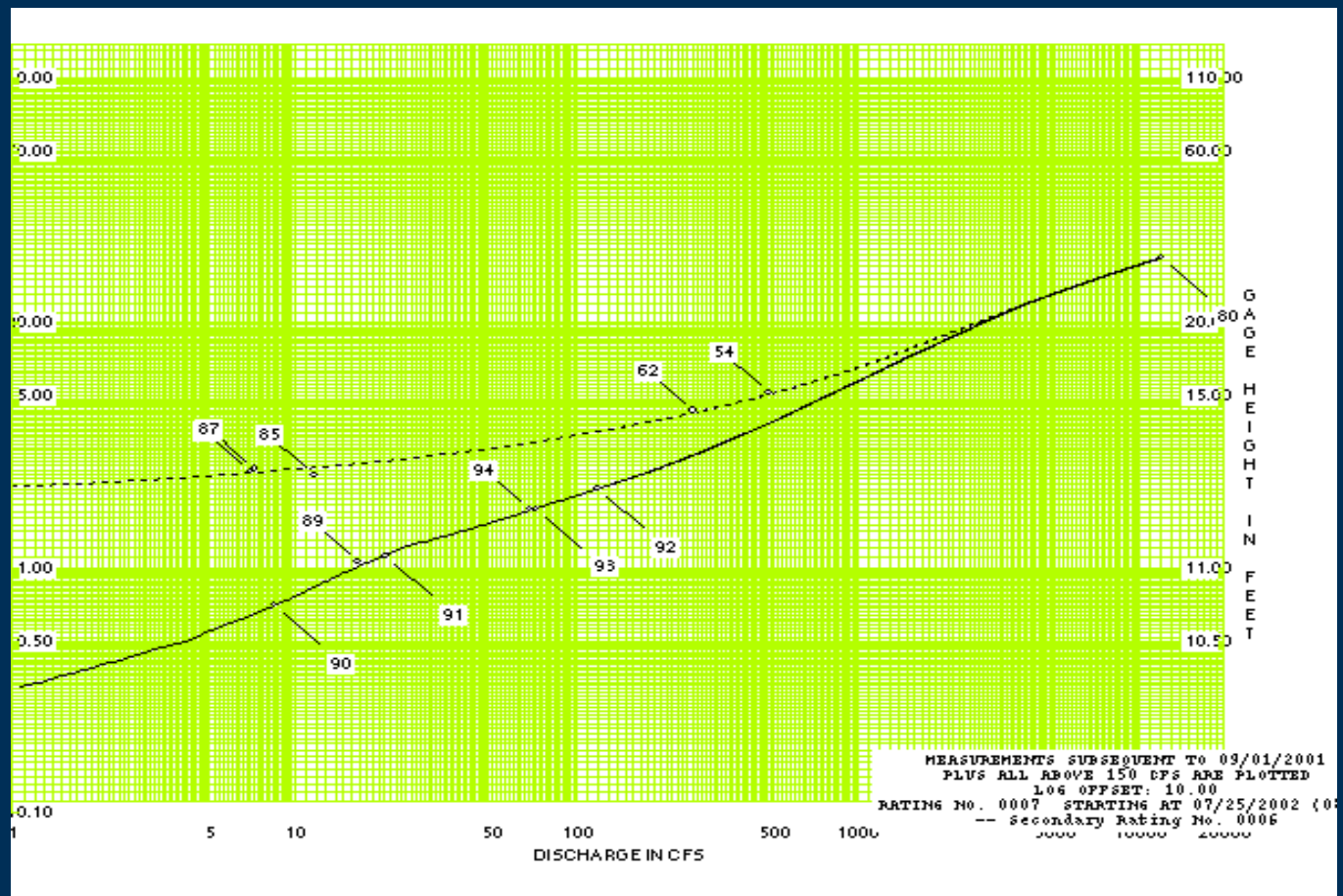
Data Processing

Discharge must be measured at all stages



Data Processing

- Ratings are never that simple!

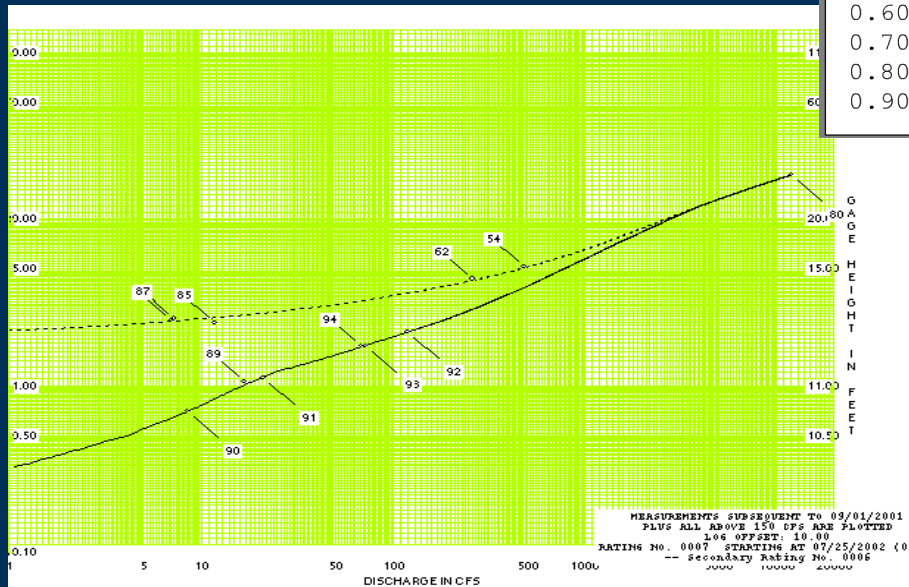


RATING ID: 41.0 **Rating for Discharge** (DCP) (cfs)
TYPE: stage-discharge EXPANSION: logarithmic

OFFSET: 0.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs)						DIFF IN Q PER .1 UNITS	
	.00	.01	.02	.03	.0409	
0.30	1.8*	1.8	1.9	2.0	2.1	2.5	0.80
0.40	2.6	2.7	2.8	2.9	2.9	3.4	0.90
0.50	3.5*	3.6	3.8	3.9	4.1	4.9	1.6
0.60	5.1	5.2	5.4	5.6	5.8	6.7	1.9
0.70	7.0*	7.2	7.6	7.9	8.2	9.9	3.3
0.80	10.3*	10.7	11.2	11.7	12.1	14.7	5.0
0.90	15.3*	15.8	16.4	16.9	17.5	20.6	5.9

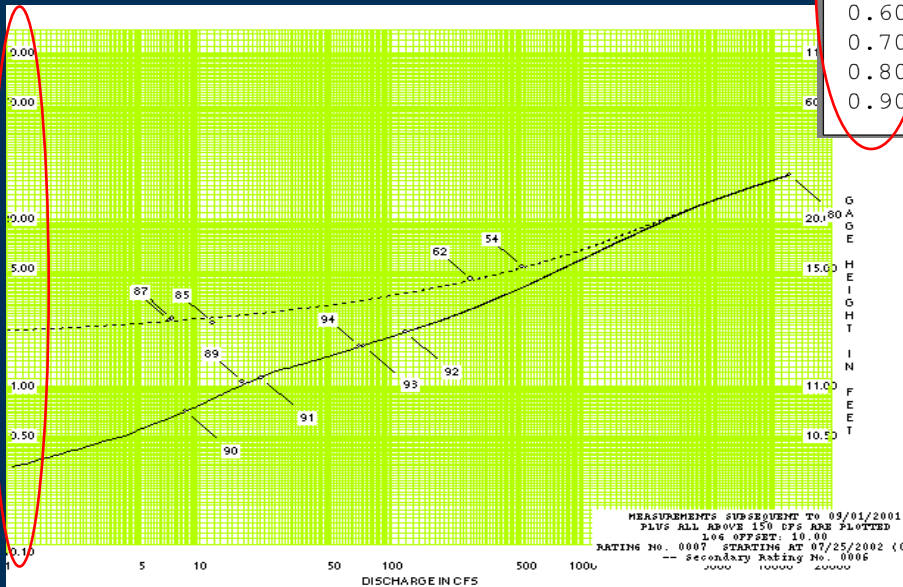


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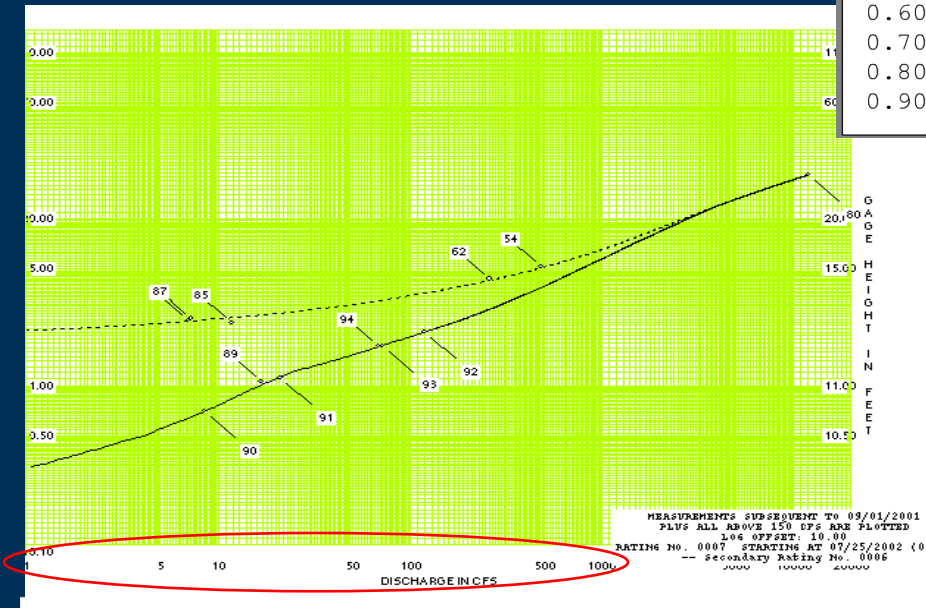


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Here is how to read a “rating table”.

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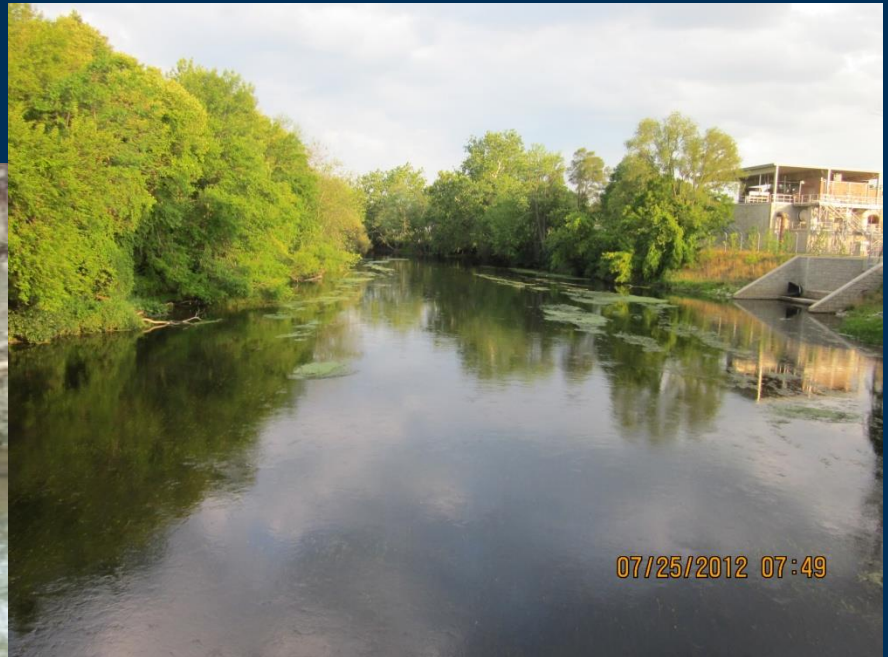
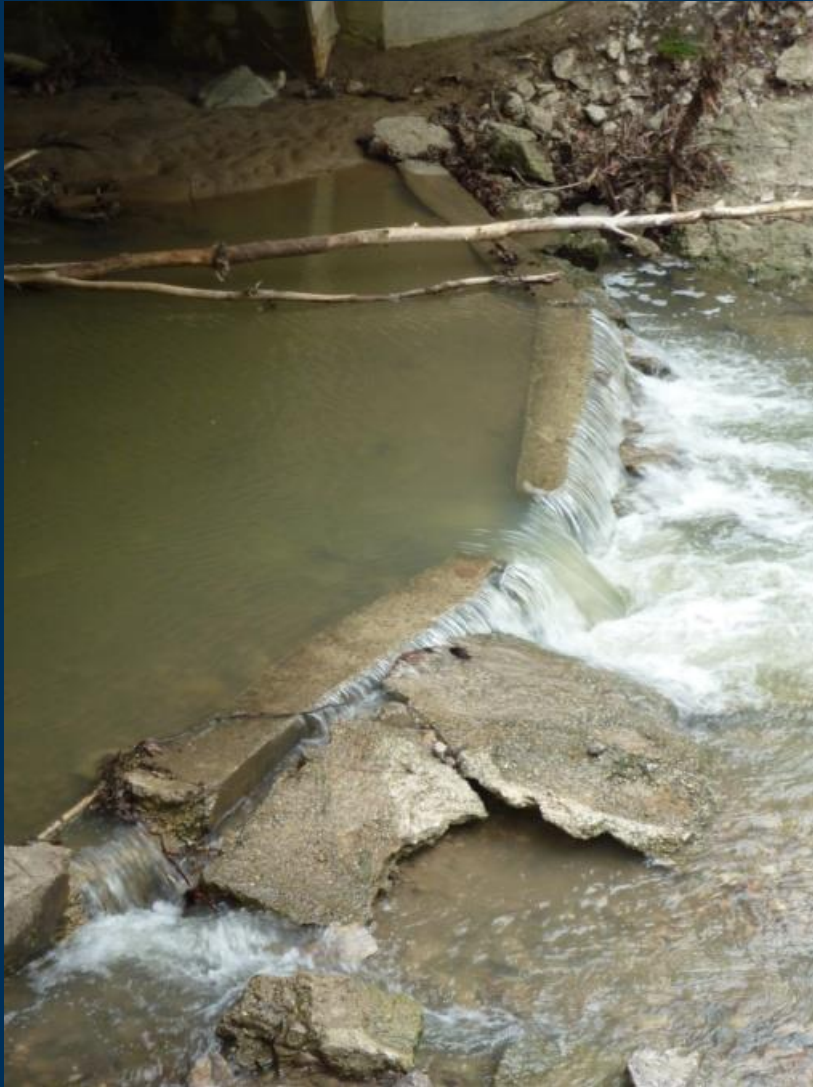
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0.80	10.3*	10.7	11.6	11.9	12.4	14.5	5.0
0.90	15.3*	15.8	16.9	17.4	18.2	21.0	8.0

Gage Height = 0.62 feet

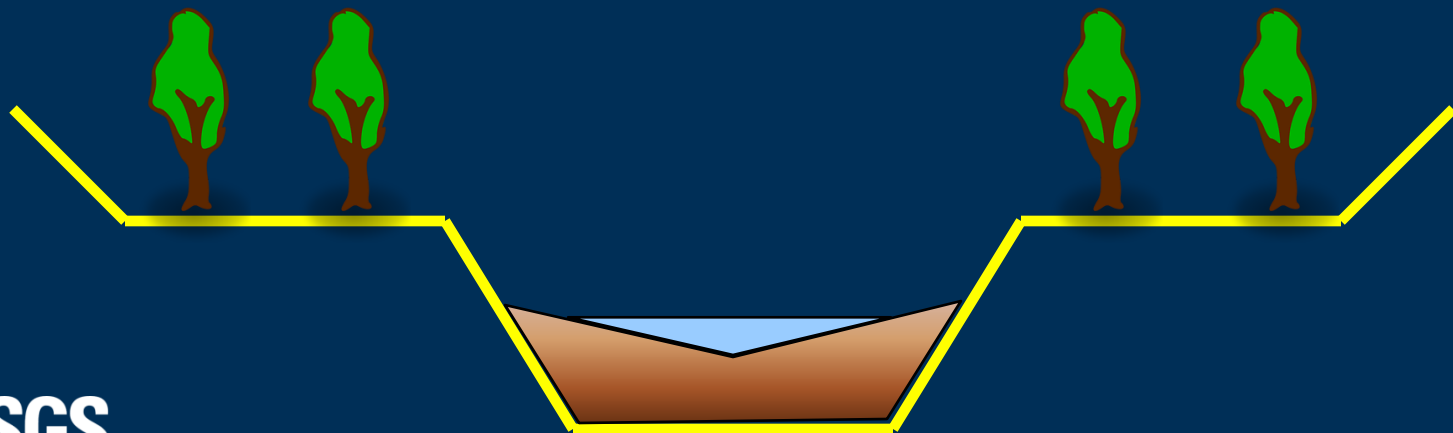
Discharge = 5.4 cubic feet per sec

Control



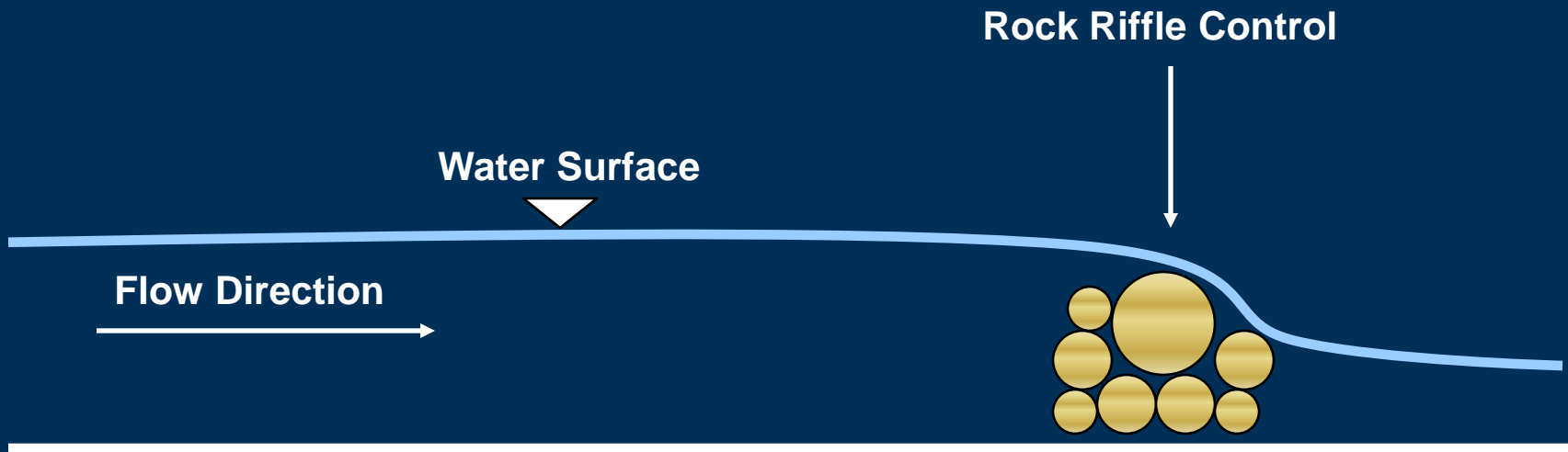
Section Control

- Rock Riffle
- Weir
- Beaver Dam



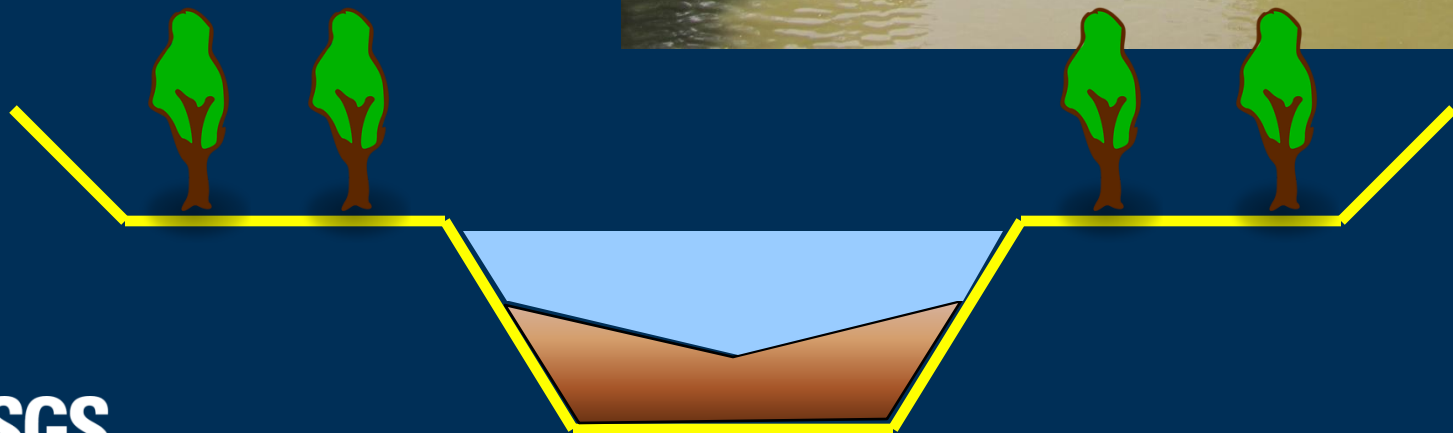
Section Control

Identified by a break in the water surface downstream from the gage.



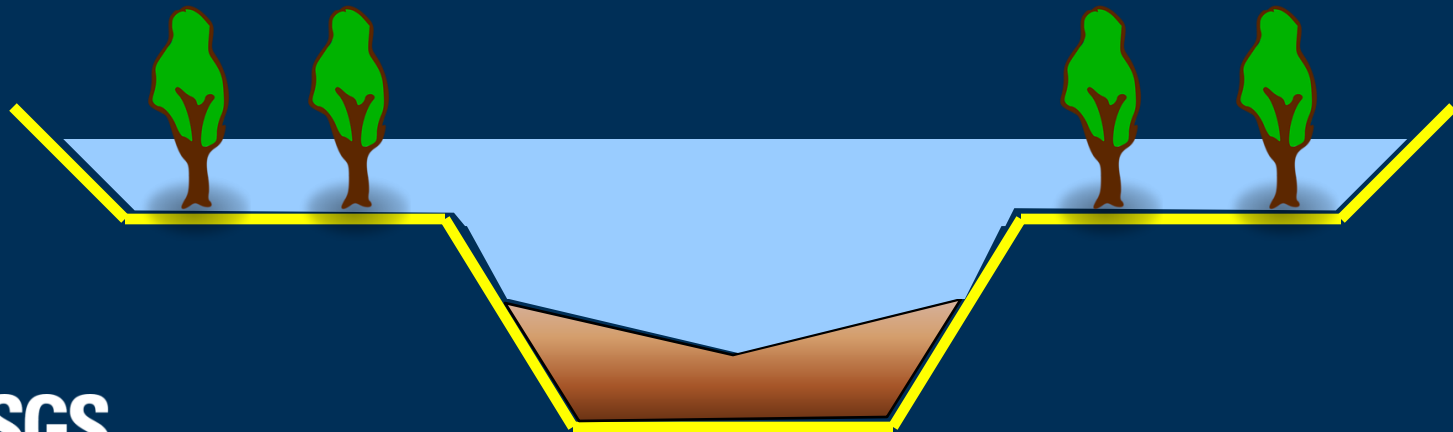
Channel Control

Contained within
the normal banks of
the channel



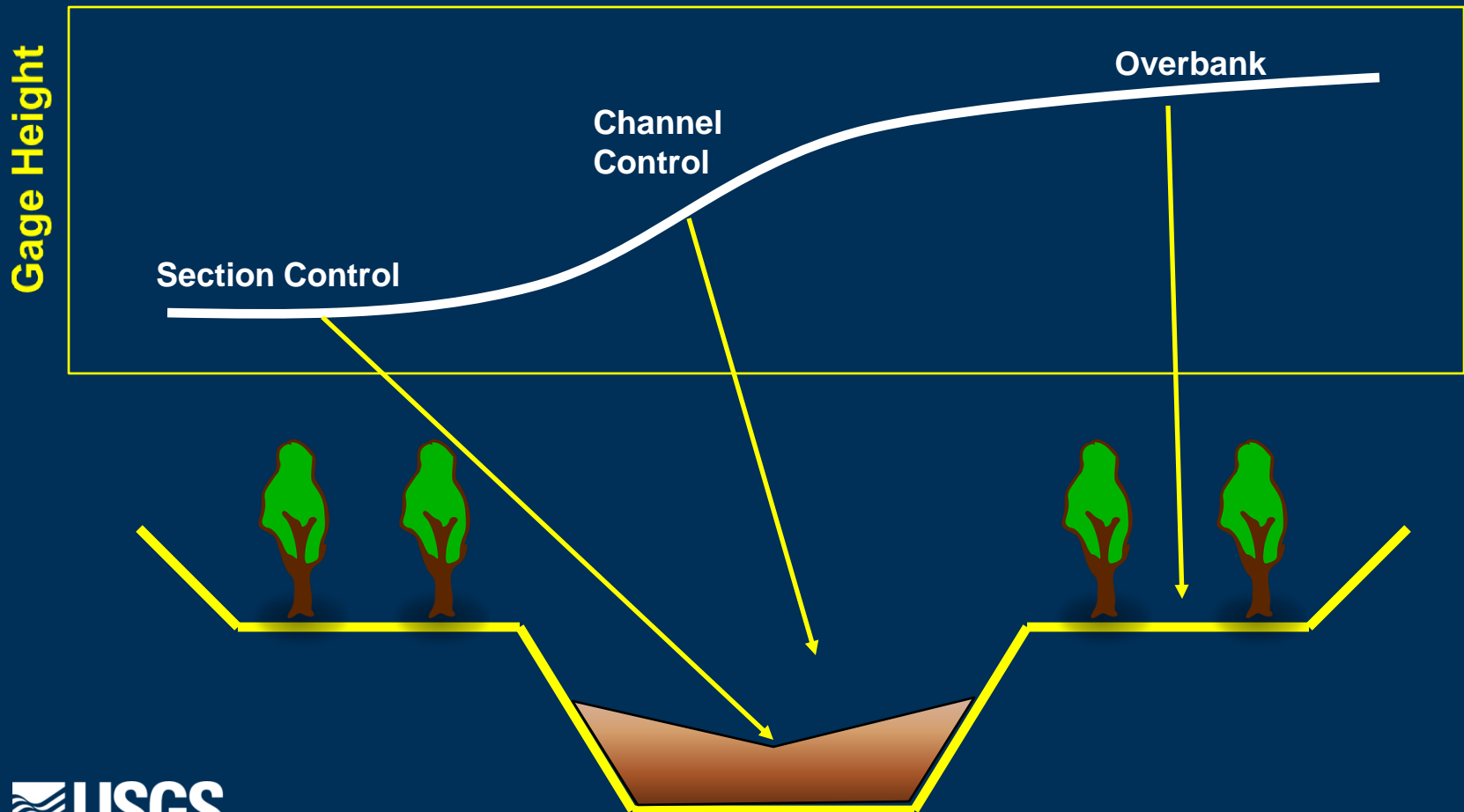
Overbank Control

Flow into the floodplain



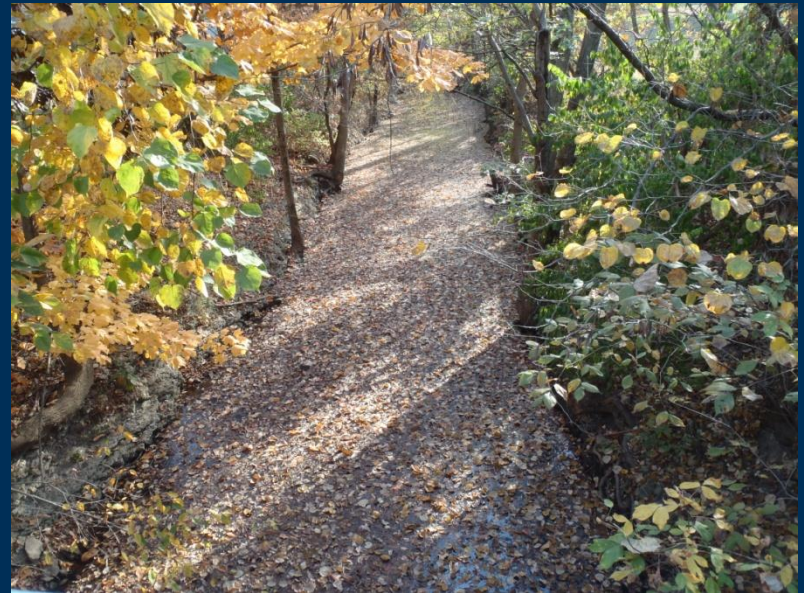
Data Processing

The shape of a rating is controlled by the channel and its features.



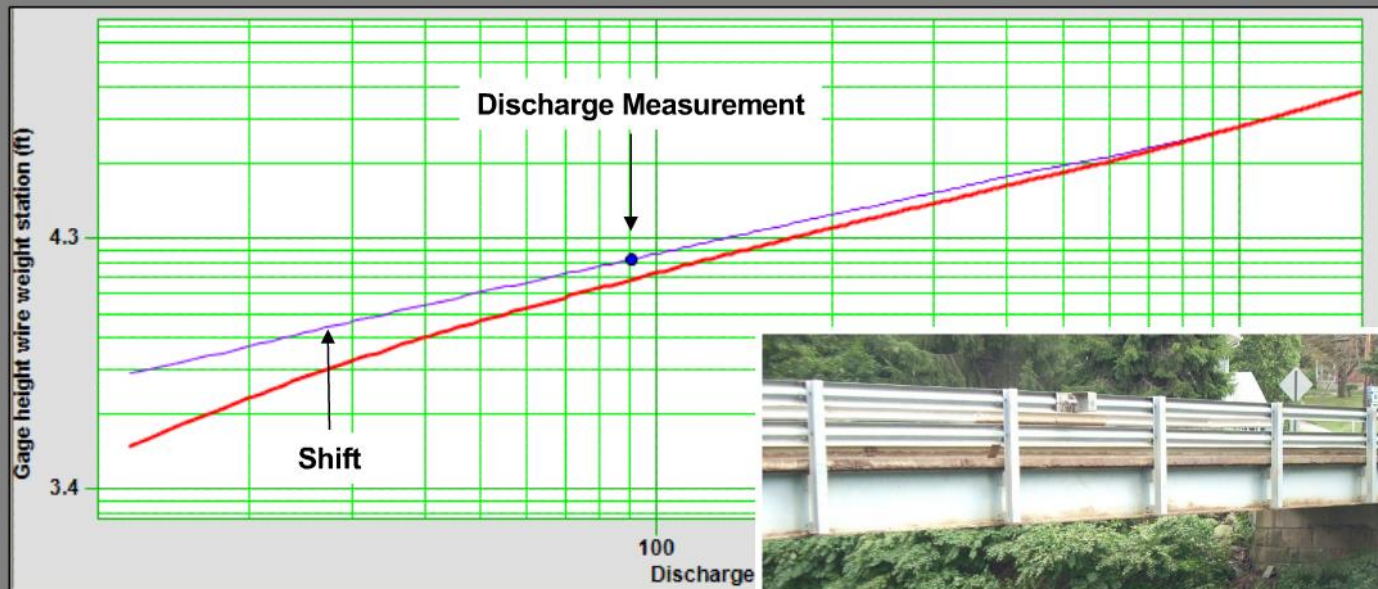
Data Processing

- Temporary changes to the control dictate shifts



Data Processing SHIFTS

Since gage control conditions change, the stage-discharge relations must be adjusted.



- Shift adjustments are applied for temporary changes in the stage-discharge relation.



measurement

Form **9-275G**
(Sept. 2000)

U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey
WATER RESOURCES DIVISION
DISCHARGE MEASUREMENT AND
GAGE INSPECTION NOTES

Meas. No. _____
Comp. by _____
Checked by _____

Sta. No. _____
Sta. Name _____
Date _____, 20____ Party _____
Width _____ Area _____ Vel. _____ **G.H. _____** Disch. _____
Method _____ No. secs. _____ G.H. change _____ in _____ hrs.
Method coef. _____ Horiz. angle coef. _____ Susp. _____ Tags checked _____
Meter Type _____ Meter No. _____ Meter _____ ft. above bottom of wt.
Rating used _____ So in test before meas. _____ after _____
Meas. plots _____ % diff. from rating no. _____ Indicated shift _____

GAGE READINGS					
Time				Inside	Outside
Start					
Finish					
Weighted MGH					
GH correction					
Correct MGH					

Samples collected: water quality,
sediment, biological, other _____
Measurements documented on
separate sheets: water quality,
aux./base gage, other _____
Rain gage serviced/calibrated _____
Weather: _____
Air Temp. _____ °C at _____
Water Temp. _____ °C at _____
Check bar/chain found _____
Corrected to _____ at _____
Correct _____

Wading, cable, ice, boat, upstr., downstr., side bridge, _____ ft., mi. upstr., downstr. of gage.
Measurement rated excellent (2%), good (5%), fair (8%), poor (> 8%); based on following
conditions: Flow: _____
Cross section: _____
Gage operating: _____ Record Removed _____
Battery voltage: _____ Intake/Orifice cleaned/purged: _____
Bubble-gage pressure, psi: Tank _____, Line _____; Bubble-rate _____ /min.
Extreme-GH indicators: max _____, min _____
CSG checked: _____ HWM height on stick _____ Ref. elev. _____ HWM elev. _____
HWM inside/outside: _____
Control: _____
Remarks: _____
GH of zero flow = GH _____ - depth at control _____ = _____ ft., rated _____

Sheet No. _____ of _____ sheets

Compute percent difference from rating: $\begin{bmatrix} 0 & 0 \end{bmatrix}$

$$\left[\frac{Q_{\text{measured}} - Q_{\text{rating}}}{Q_{\text{rating}}} \right] \times 100\%$$

Compute shift:

Example:

$$Q_{\text{measured}} = 7.5 \text{ ft}^3/\text{s}$$

$$\text{GH}_{\text{Rating}} - \text{GH}_Q$$

Gage height (GH_Q) = 0.89 ft

Gage height from rating ($\text{GH}_{\text{Rating}}$) = 0.95 ft

Computed shift = +0.06 ft

Gage height, Feet	Discharge (cfs)									
	(STANDARD PRECISION)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.10			0.04*	0.07	0.11	0.15	0.19	0.24	0.29	0.34
0.20	0.39	0.44	0.50	0.56	0.62	0.68	0.75	0.81	0.88	0.95
0.30	1.0	1.1	1.2	1.2	1.3	1.4	1.5	1.5	1.6	1.7
0.40	1.8	1.9	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
0.50	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5
0.60	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5
0.70	4.6	4.7	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6
0.80	5.7	5.9	6.0	6.1	6.2	6.3	6.4	6.6	6.7	6.8
0.90	6.9	7.0	7.2	7.3	7.4	7.5	7.6	7.8	7.9	8.0
1.00	8.1	8.3	8.4	8.5	8.6	8.8	8.9	9.0	9.2	9.3
1.10	9.4	9.5	9.7	9.8	9.9	10.1	10.2	10.3	10.5	10.6
1.20	10.7	10.9	11.0	11.1	11.3	11.4	11.6	11.7	11.8	12.0
1.30	12.1	12.2	12.4	12.5	12.7	12.8	13.0	13.1	13.2	13.4
1.40	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.5	14.7	14.8
1.50	15.0	15.1	15.3	15.4	15.6	15.7	15.9	16.0	16.2	16.3
1.60	16.5	16.6	16.8	16.9	17.1	17.3	17.4	17.6	17.7	17.9
1.70	18.0	18.2	18.3	18.5	18.7	18.8	19.0	19.1	19.3	19.4
1.80	19.6	19.8	19.9	20.1	20.2	20.4	20.6	20.7	20.9	21.1
1.90	21.2	21.4	21.5	21.7	21.9	22.0	22.2	22.4	22.5	22.7

Interpretation of a positive computed shift.



The gage height (GH_Q) = 0.89 ft.

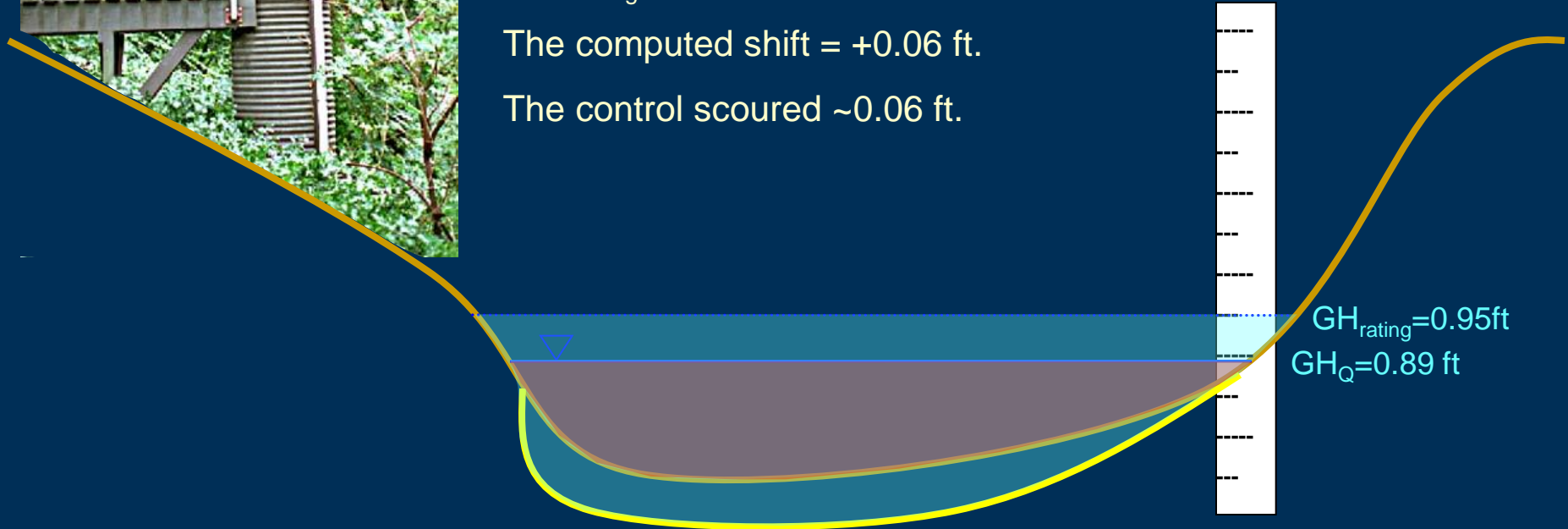
For this gage height the rating table indicates that the discharge should be $6.8 \text{ ft}^3/\text{s}$.

Discharge measured = $7.5 \text{ ft}^3/\text{s}$.

The rating table says $7.5 \text{ ft}^3/\text{s}$ is associated with a gage height (GH_{Rating}) of 0.95 ft .

The computed shift = +0.06 ft.

The control scoured ~ 0.06 ft.



Interpretation of a negative computed shift.

The gage height (GH_Q) = 0.89 ft.

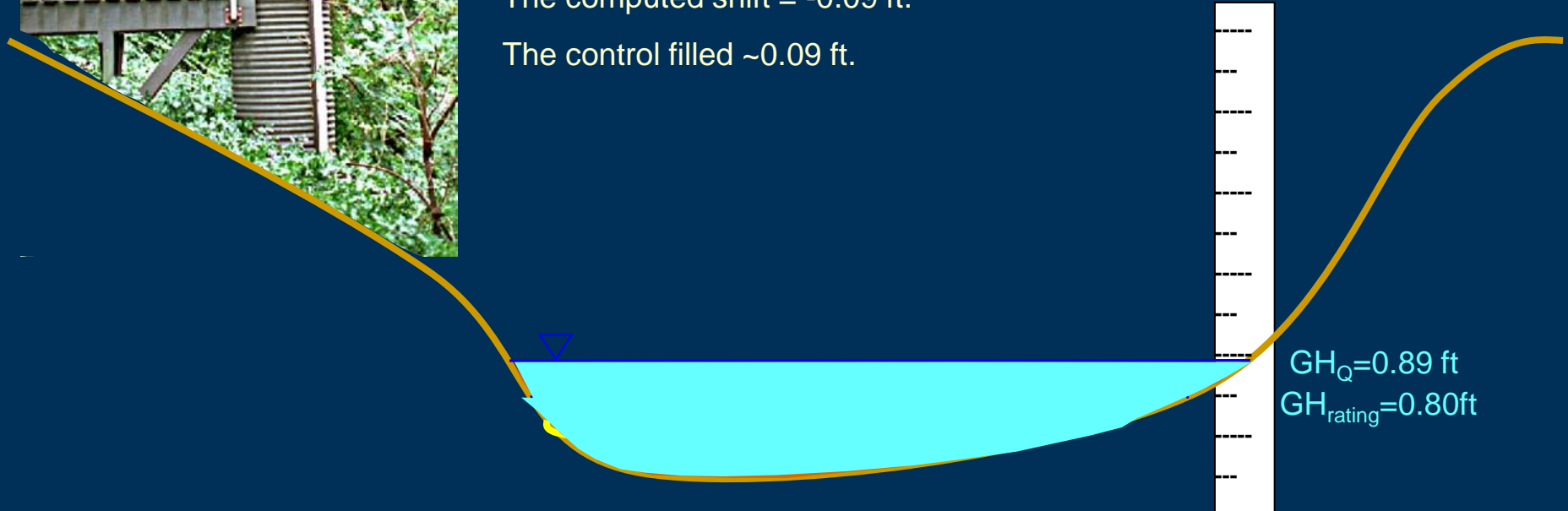
For this gage height the rating table indicates that the discharge should be $6.8 \text{ ft}^3/\text{s}$.

Discharge measured = $5.7 \text{ ft}^3/\text{s}$.

The rating table says $5.7 \text{ ft}^3/\text{s}$ is associated with a gage height (GH_{Rating}) of 0.80 ft.

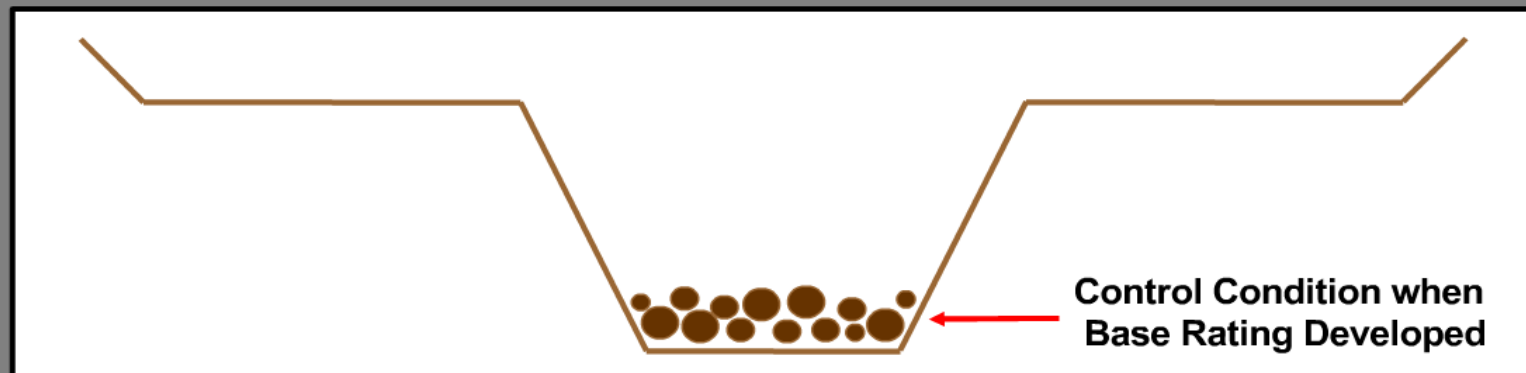
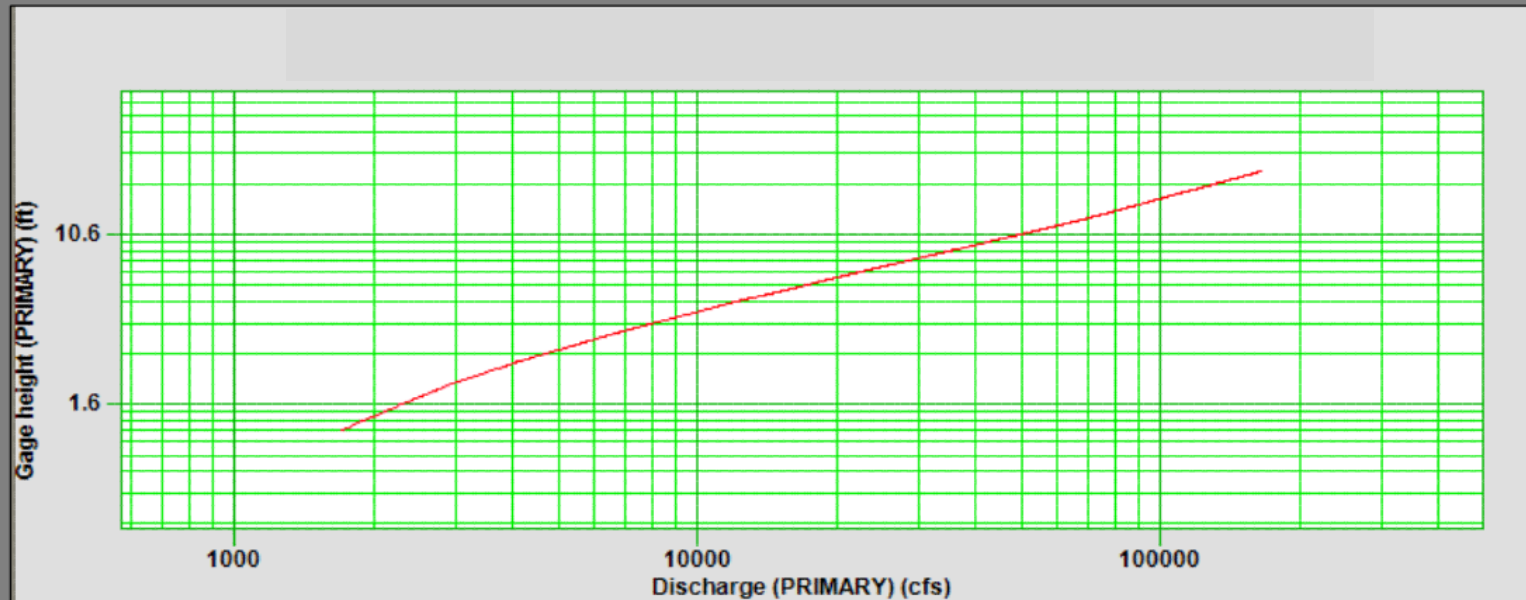
The computed shift = -0.09 ft.

The control filled ~0.09 ft.



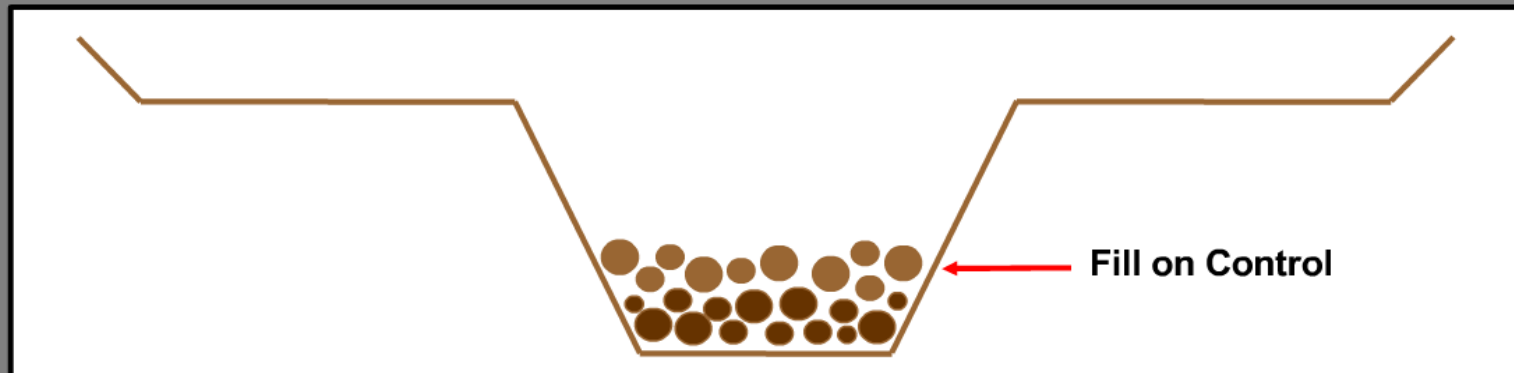
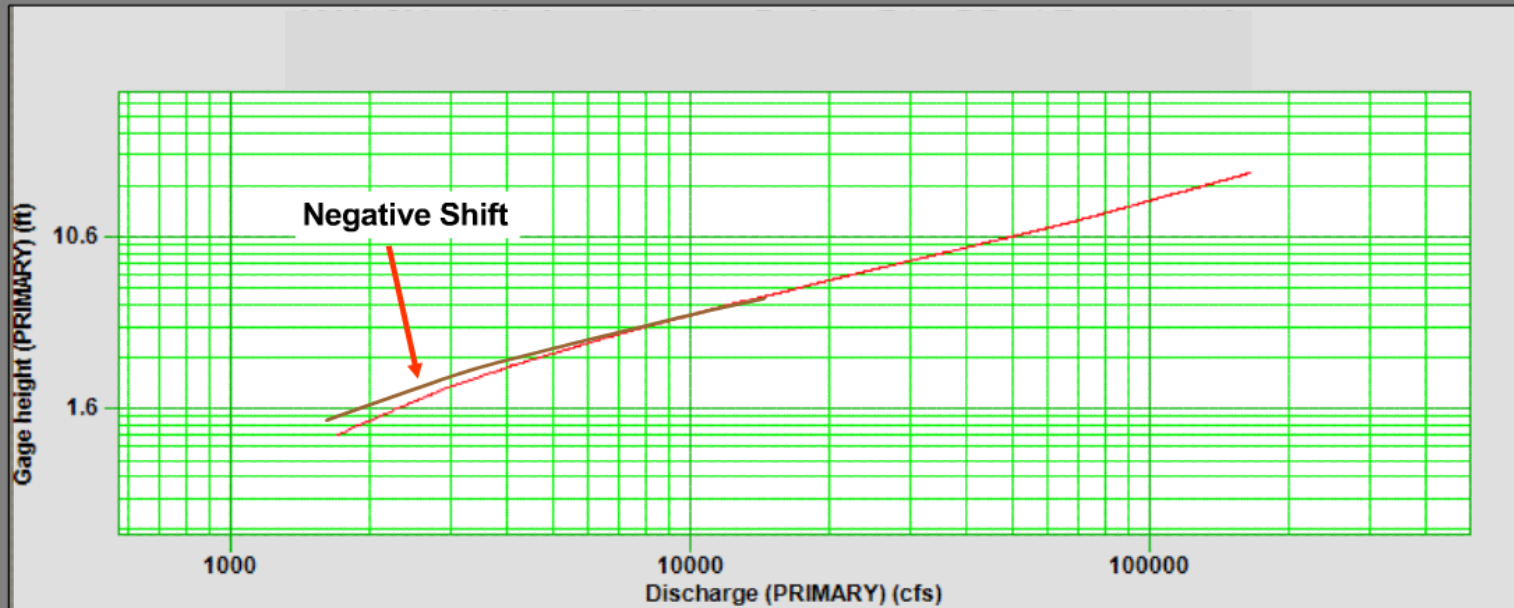
Data Processing SHIFTS

One reason negative shifts occur is due to fill on the control.



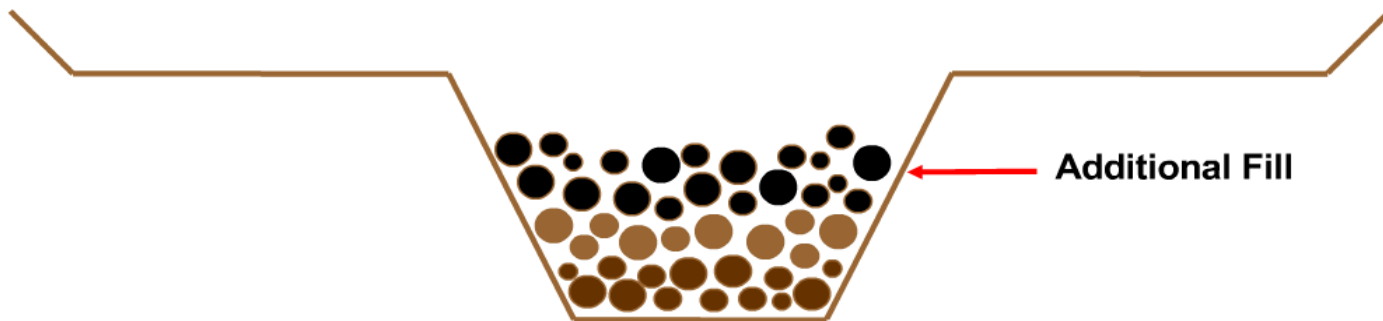
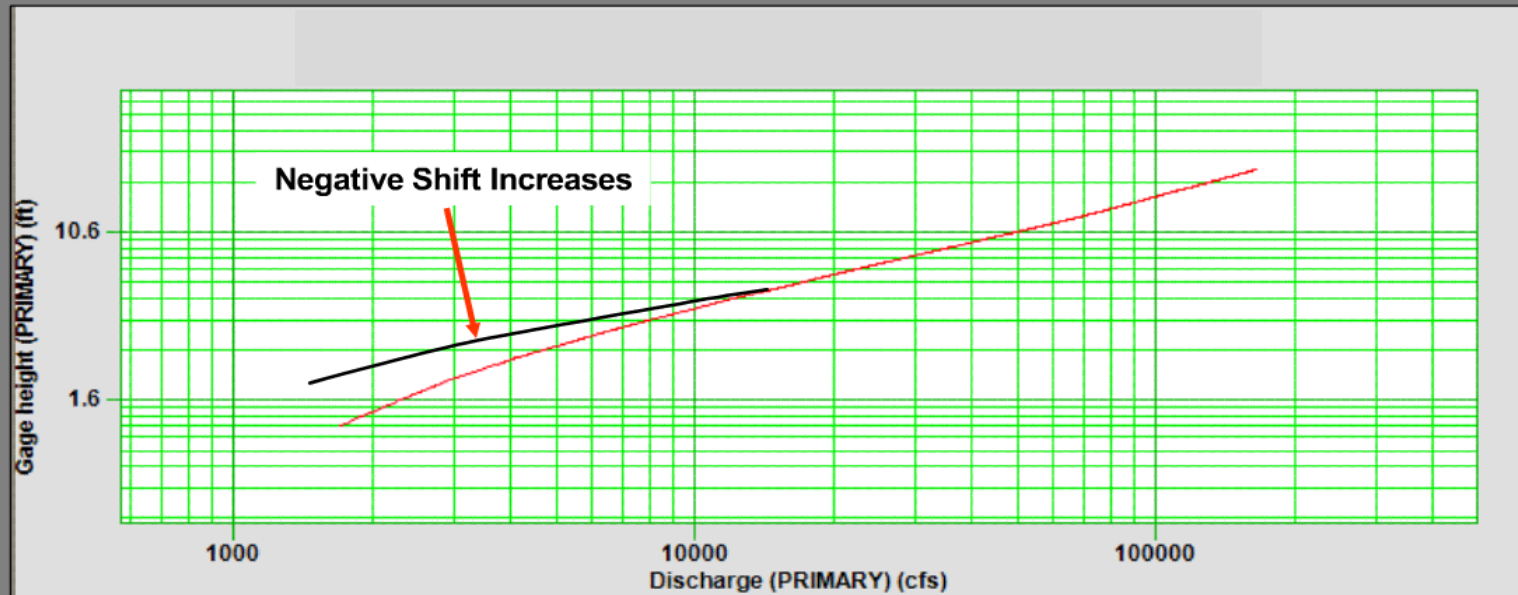
Data Processing SHIFTS

One reason negative shifts occur is due to fill on the control.



Data Processing SHIFTS

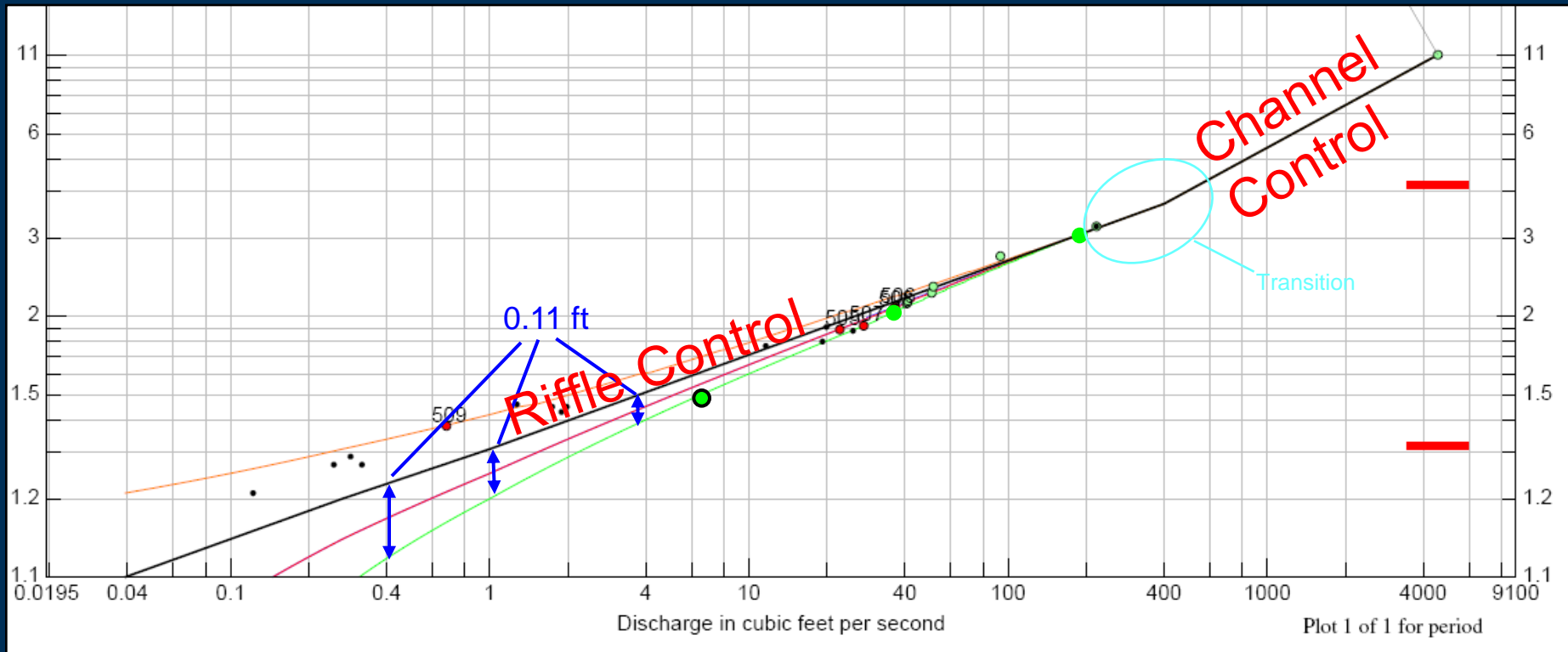
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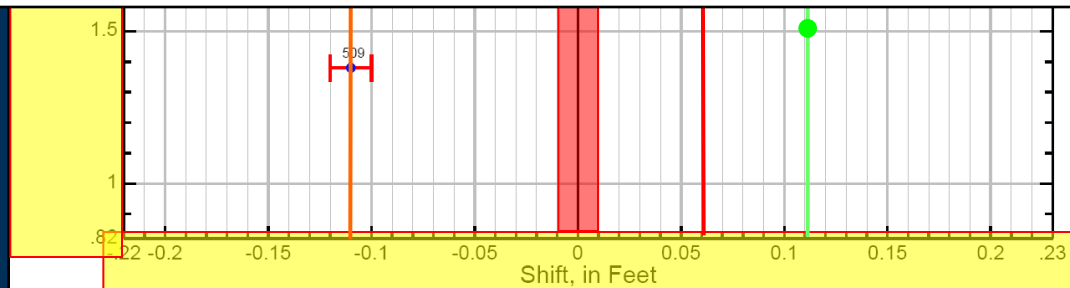
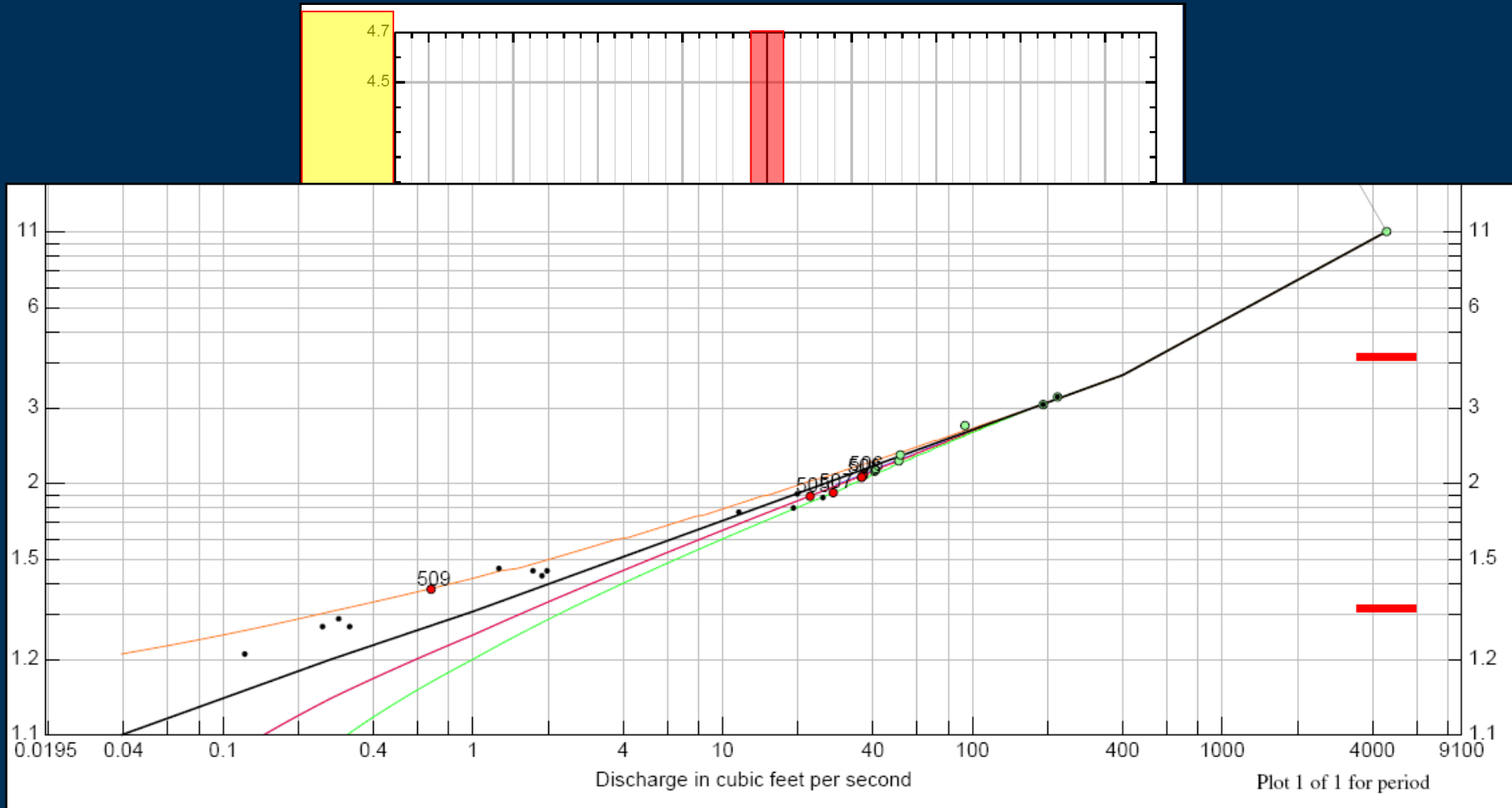
Computed shift values and the rating curve.



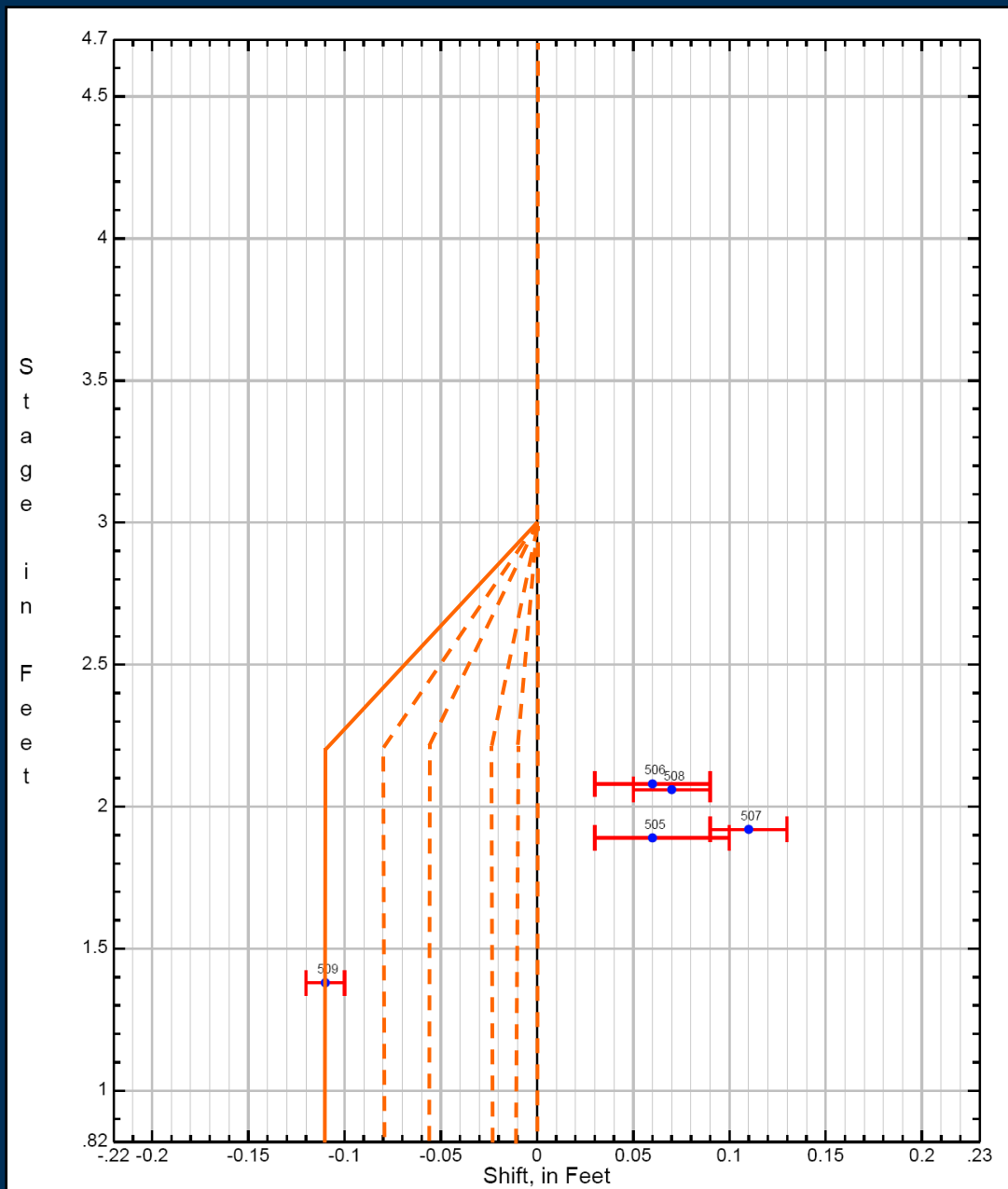
Shift curves and the rating curve.



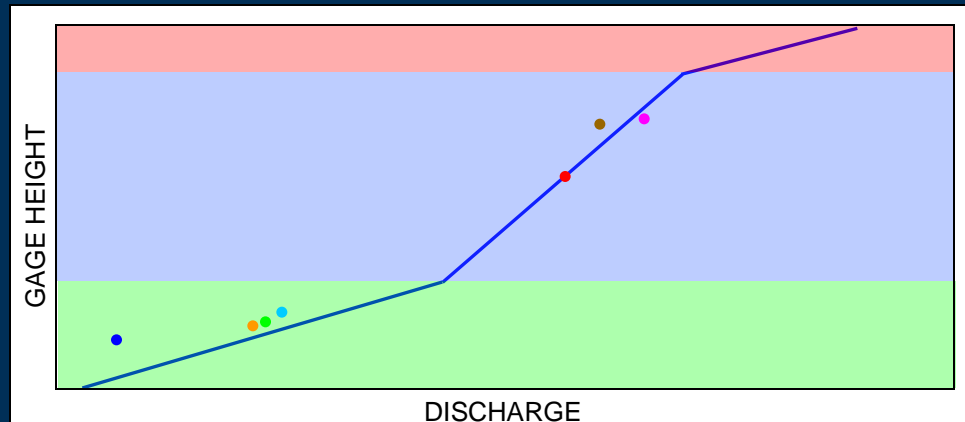
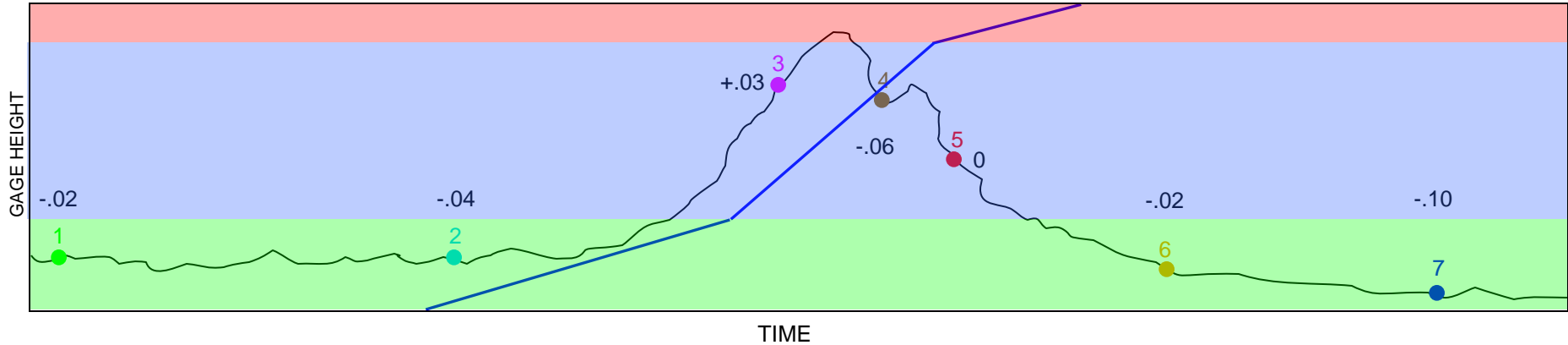
Variable Shift Diagram (V-diagram).



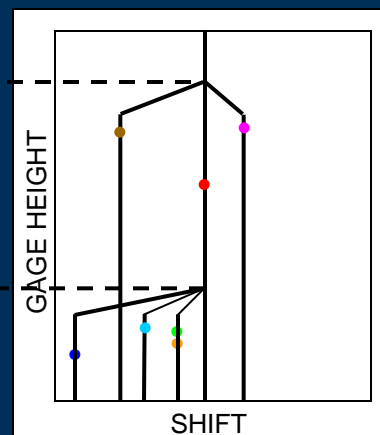
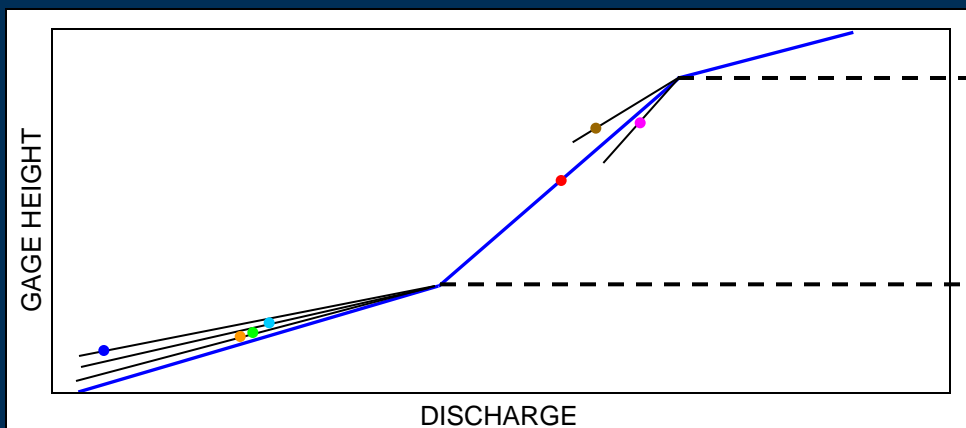
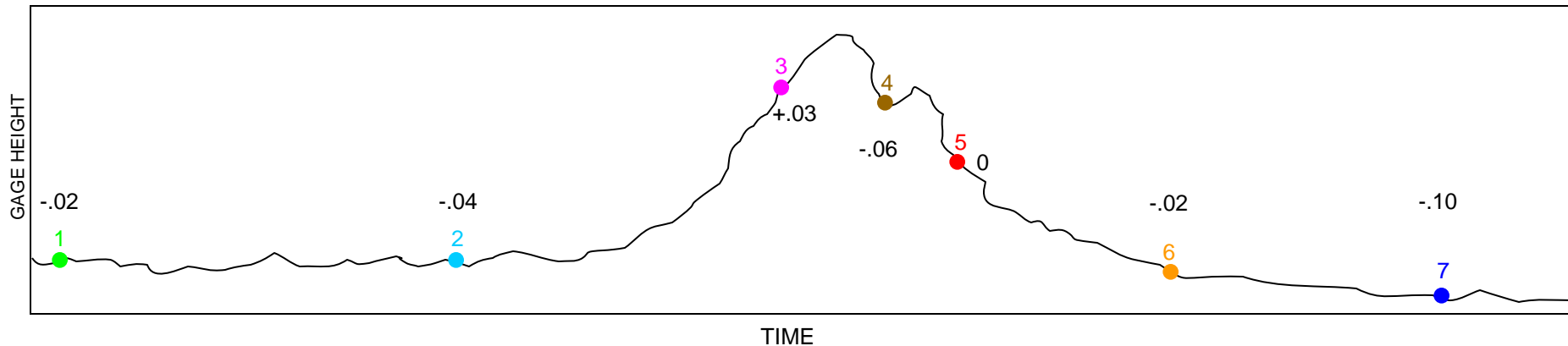
Proration of shift curves.



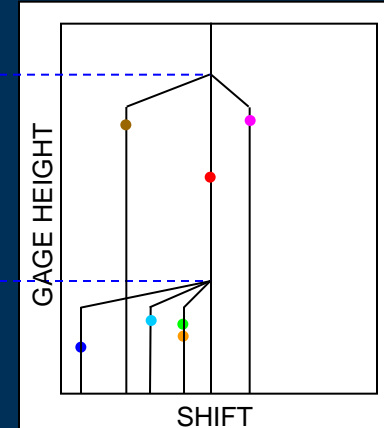
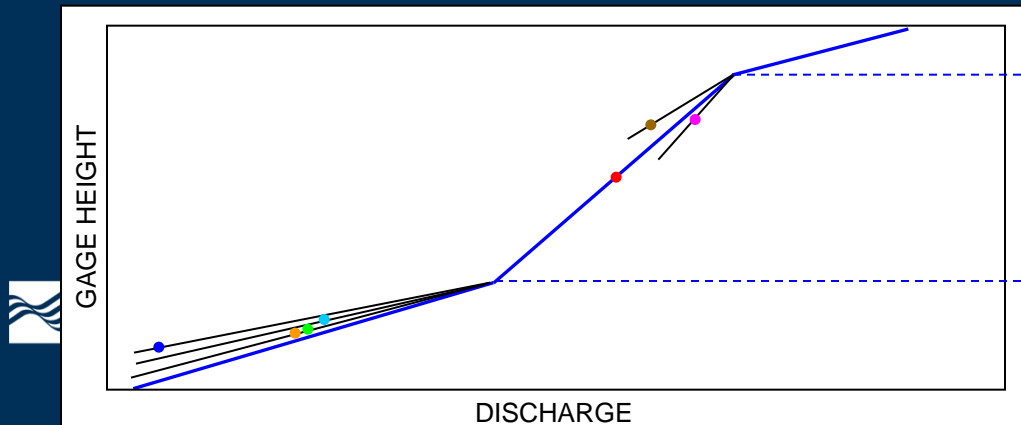
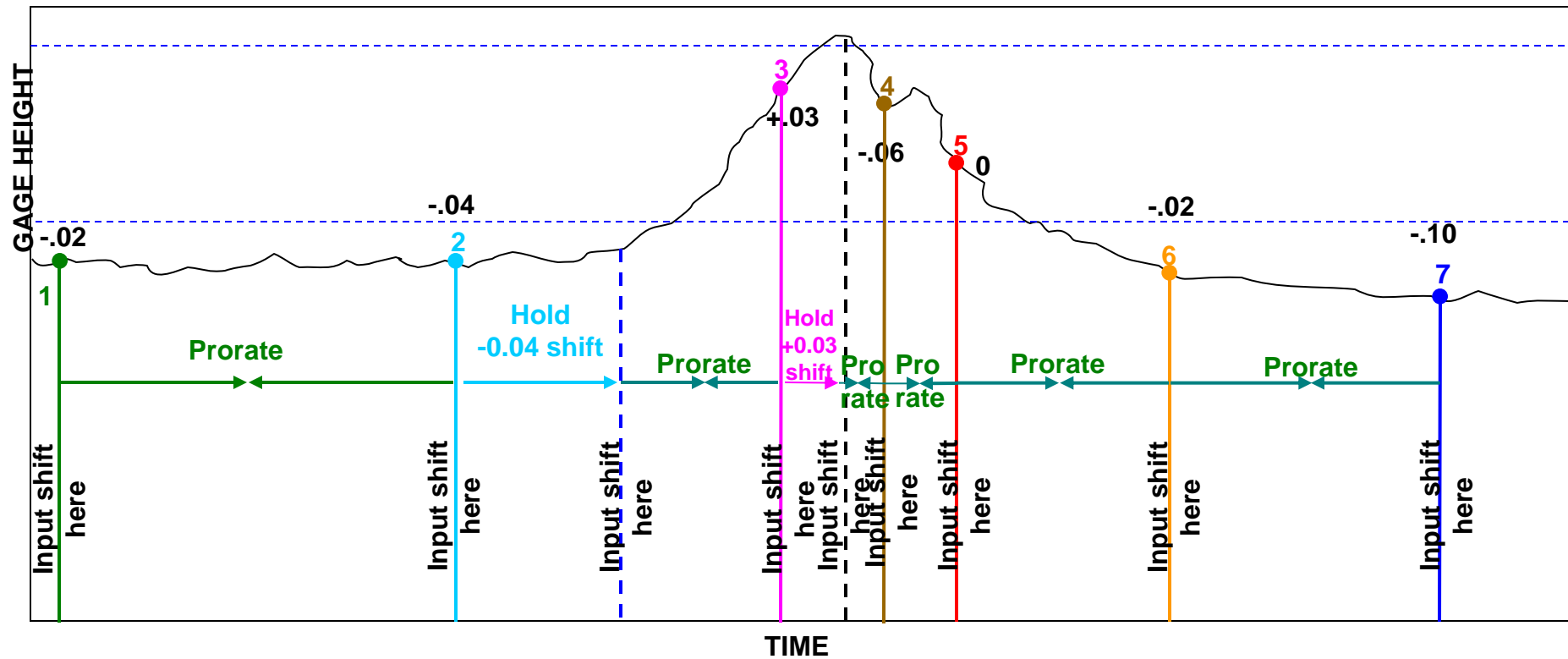
Shift curves, the rating, and the gage height record.



Development of shift curves.



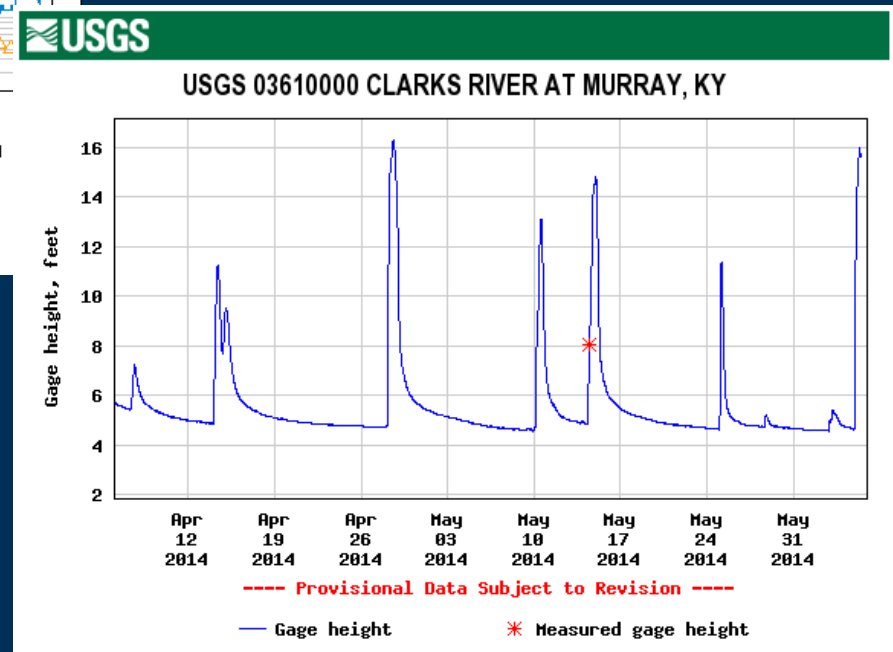
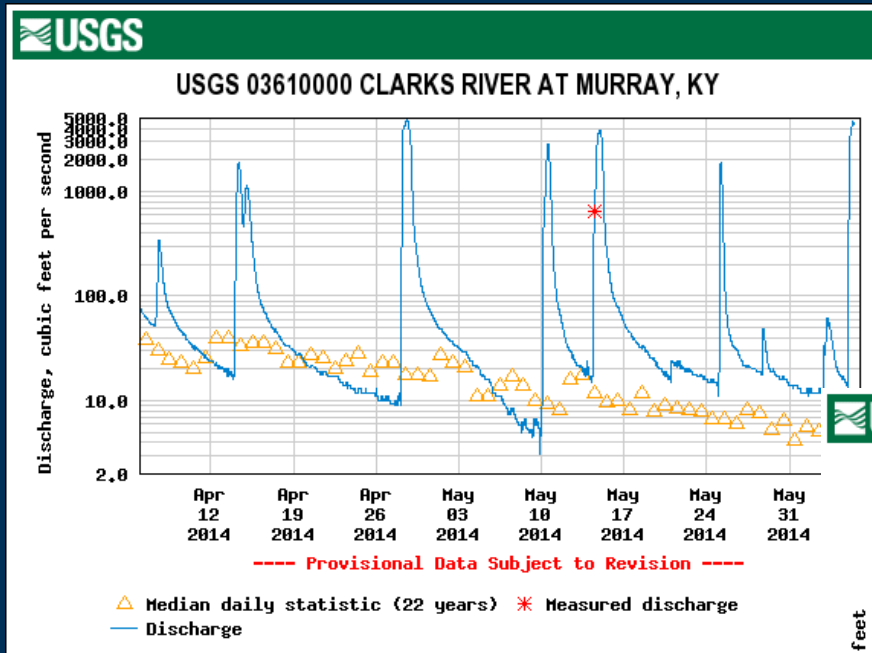
Application of shift curves to gage height record.



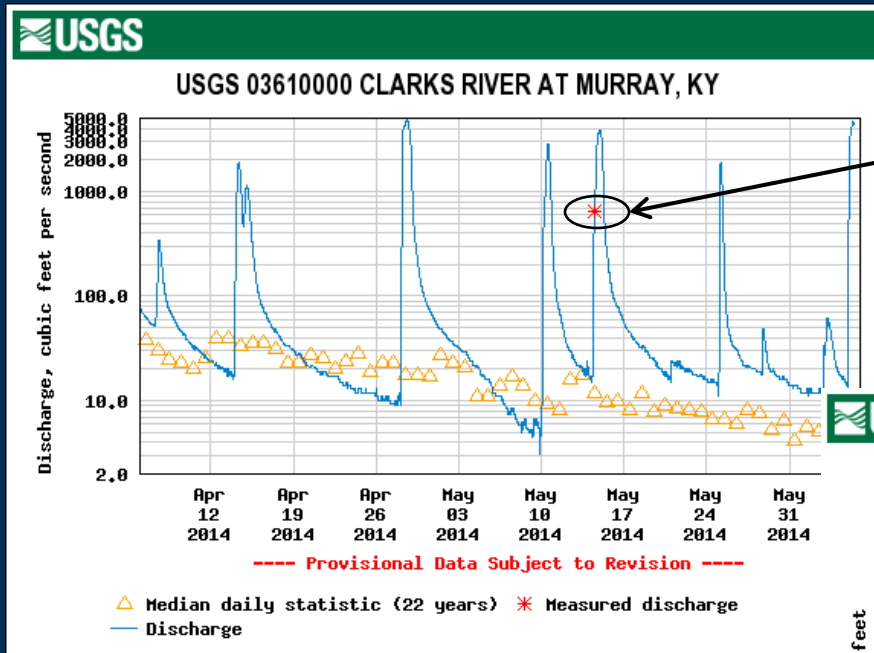
How does this translate to the data on the web?

- Seamlessly
- If a shift is added correctly, the web shows the data with the corrected values.
- If a shift wasn't applied the measurement will look like it'd not in line with the data.

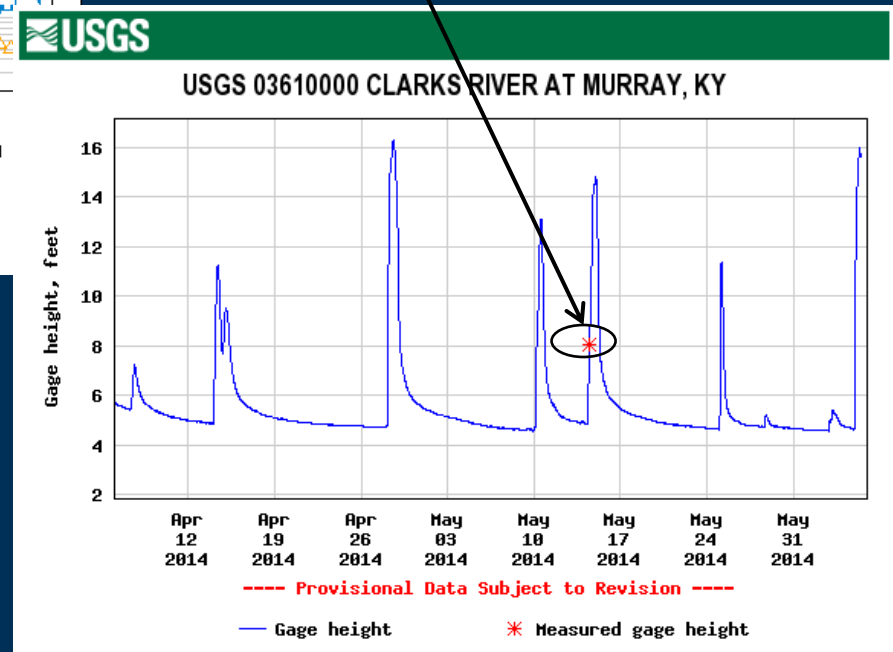
Example of either a shift applied or no shift needed



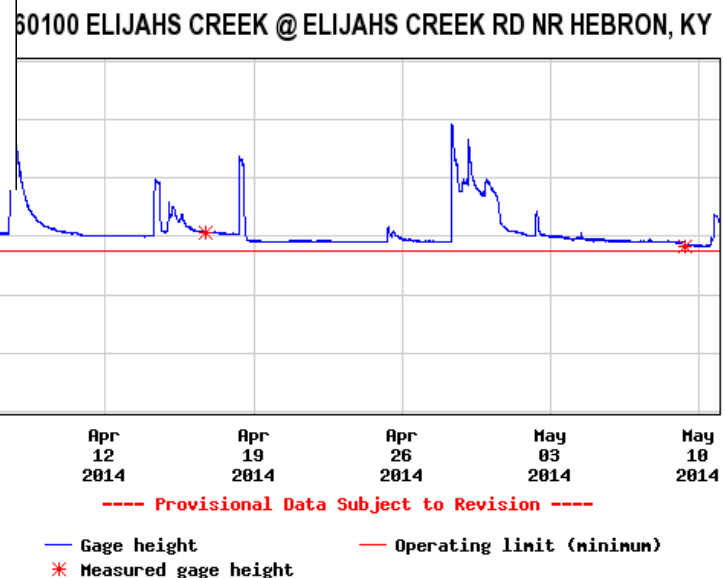
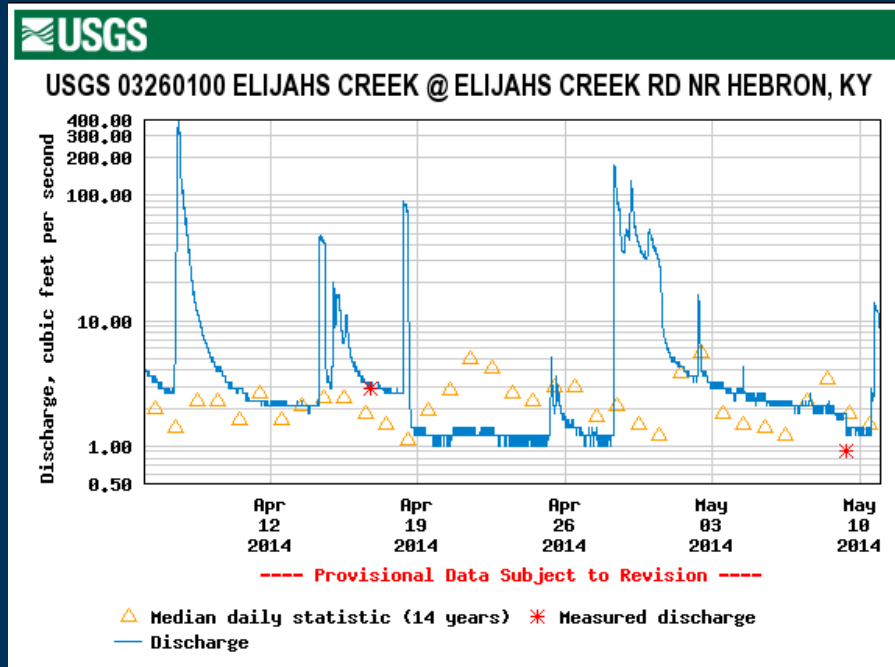
Example of either a shift applied or no shift needed



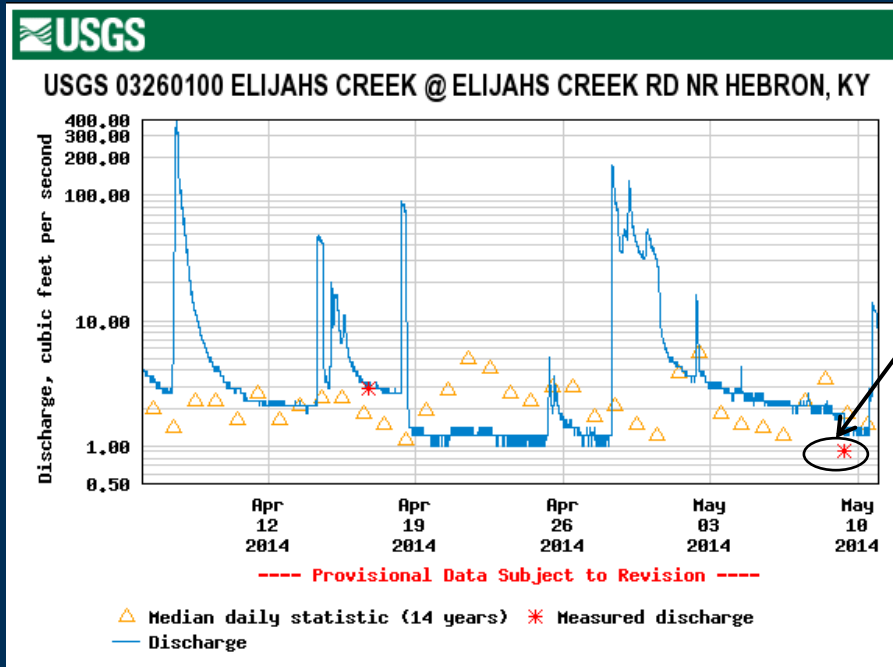
Measurement is in-line with data



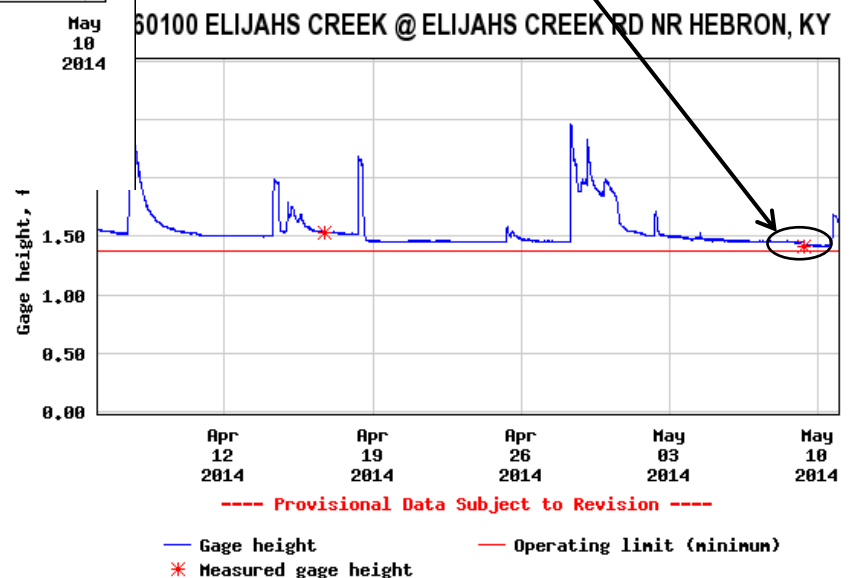
Example of either a shift not applied but needed



Example of either a shift not applied but needed



Measurement is off with data



How can you determine if a shift was added?

This station managed by the Louisville District Office.

Available Parameters	Available Period	Output format
<input type="checkbox"/> All 9 Available Parameters for this site		<input checked="" type="radio"/> Graph
<input checked="" type="checkbox"/> 00065 Gage height	2014-02-05 2014-06-05	<input type="radio"/> Graph w/ stats
<input checked="" type="checkbox"/> 00060 Discharge	2007-10-01 2014-06-05	<input type="radio"/> Graph w/o stats
<input type="checkbox"/> 00045 Precipitation	2014-02-05 2014-06-05	<input type="radio"/> Graph w/ (up to 3) parms
<input type="checkbox"/> 70969 DCP battery voltage	2014-04-29 2014-06-05	<input type="radio"/> Table
<input type="checkbox"/> 00010 Temperature, water	2007-10-01 2014-06-05	<input type="radio"/> Tab-separated
<input type="checkbox"/> 00300 Dissolved oxygen	2007-10-01 2014-06-05	
<input type="checkbox"/> 00400 pH	2007-10-01 2014-06-05	
<input type="checkbox"/> 00095 Specific cond at 25C	2007-10-01 2014-06-05	
<input type="checkbox"/> 63680 Turbidity, Form Neph	2011-06-06 2014-06-04	

[Summary of all available data for this site](#)
[Instantaneous-data availability statement](#)

How can you determine if a shift was added?

This station managed by the Louisville District Office.

Available Parameters	Available Period	Output format
<input type="checkbox"/> All 9 Available Parameters for this site		<input checked="" type="radio"/> Graph
<input checked="" type="checkbox"/> 00065 Gage height	2014-02-05 2014-06-05	<input type="radio"/> Graph w/ stats
<input checked="" type="checkbox"/> 00060 Discharge	2007-10-01 2014-06-05	<input type="radio"/> Graph w/o stats
<input type="checkbox"/> 00045 Precipitation	2014-02-05 2014-06-05	<input type="radio"/> Graph w/ (up to 3) parms
<input type="checkbox"/> 70969 DCP battery voltage	2014-04-29 2014-06-05	<input type="radio"/> Table
<input type="checkbox"/> 00010 Temperature, water	2007-10-01 2014-06-05	<input type="radio"/> Tab-separated
<input type="checkbox"/> 00300 Dissolved oxygen	2007-10-01 2014-06-05	
<input type="checkbox"/> 00400 pH	2007-10-01 2014-06-05	
<input type="checkbox"/> 00095 Specific cond at 25C	2007-10-01 2014-06-05	
<input type="checkbox"/> 63680 Turbidity, Form Neph	2011-06-06 2014-06-04	

[Summary of all available data for this site](#)
[Instantaneous-data availability statement](#)

DESCRIPTION:

Latitude 39°04'47", Longitude 84°41'07" NAD83
 Boone County, Kentucky, Hydrologic Unit 05090203
 Drainage area: 4.03 square miles
 Datum of gage: 759.08 feet above NGVD29.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Current / Historical Observations (availability statement)	2007-10-01	2014-06-05	
Daily Data			
Temperature, water, degrees Celsius	2001-03-07	2010-09-30	9651
Discharge, cubic feet per second	1999-04-09	2014-06-04	5526
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius	2001-03-07	2010-09-30	9202
Dissolved oxygen, water, unfiltered, milligrams per liter	2001-03-07	2010-09-30	7722
pH, water, unfiltered, field, standard units	2001-03-07	2010-09-30	8702
Turbidity, water, unfiltered, monochrome near infra-red LED light, 780-900 nm, detection angle 90 +-2.5 degrees, formazin nephelometric units (FNU)	2001-03-07	2003-06-17	1044
Daily Statistics			
Temperature, water, degrees Celsius	2001-03-07	2010-09-30	3218
Discharge, cubic feet per second	1999-04-09	2013-09-30	5279
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius	2001-03-07	2010-09-30	3067
Dissolved oxygen, water, unfiltered, milligrams per liter	2001-03-07	2010-09-30	2574
pH, water, unfiltered, field, standard units	2001-03-07	2005-08-02	1240
Turbidity, water, unfiltered, monochrome near infra-red LED light, 780-900 nm, detection angle 90 +-2.5 degrees, formazin nephelometric units (FNU)	2001-03-07	2003-06-17	368
Monthly Statistics			
Temperature, water, degrees Celsius	2001-03	2010-09	
Discharge, cubic feet per second	1999-04	2013-09	
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius	2001-03	2010-09	
Dissolved oxygen, water, unfiltered, milligrams per liter	2001-03	2010-09	
pH, water, unfiltered, field, standard units	2001-03	2005-08	
Turbidity, water, unfiltered, monochrome near infra-red LED light, 780-900 nm, detection angle 90 +-2.5 degrees, formazin nephelometric units (FNU)	2001-03	2003-06	
Annual Statistics			
Temperature, water, degrees Celsius	2001	2010	
Discharge, cubic feet per second	1999	2013	
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius	2001	2010	
Dissolved oxygen, water, unfiltered, milligrams per liter	2001	2010	
pH, water, unfiltered, field, standard units	2001	2005	
Turbidity, water, unfiltered, monochrome near infra-red LED light, 780-900 nm, detection angle 90 +-2.5 degrees, formazin nephelometric units (FNU)	2001	2003	
Peak streamflow	2000-01-03	2011-09-26	11
Field measurements	1999-04-08	2014-05-09	104
Additional Data Sources	Begin Date	End Date	Count
Instantaneous Data Archive ***offsite***	1999-04-09	2007-09-30	390562
Annual Water Data Report (pdf) ***offsite***	2006	2013	8

DESCRIPTION:

Latitude 39°04'47", Longitude 84°41'07" NAD83
 Boone County, Kentucky, Hydrologic Unit 05090203
 Drainage area: 4.03 square miles
 Datum of gage: 759.08 feet above NGVD29.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Current / Historical Observations (availability statement)	2007-10-01	2014-06-05	
Daily Data			
Temperature, water, degrees Celsius	2001-03-07	2010-09-30	9651
Discharge, cubic feet per second	1999-04-09	2014-06-04	5526
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius	2001-03-07	2010-09-30	9202
Dissolved oxygen, water, unfiltered, milligrams per liter	2001-03-07	2010-09-30	7722
pH, water, unfiltered, field, standard units	2001-03-07	2010-09-30	8702
Turbidity, water, unfiltered, monochrome near infra-red LED light, 780-900 nm, detection angle 90 +-2.5 degrees, formazin nephelometric units (FNU)	2001-03-07	2003-06-17	1044
Daily Statistics			
Temperature, water, degrees Celsius	2001-03-07	2010-09-30	3218
Discharge, cubic feet per second	1999-04-09	2013-09-30	5279
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pH, water, unfiltered, field, standard units	2001-03-07	2005-08-02	1240
Turbidity, water, unfiltered, monochrome near infra-red LED light, 780-900 nm, detection angle 90 +-2.5 degrees, formazin nephelometric units (FNU)	2001-03-07	2003-06-17	368
Monthly Statistics			
Temperature, water, degrees Celsius	2001-03	2010-09	
Discharge, cubic feet per second	1999-04	2013-09	
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius	2001-03	2010-09	
Dissolved oxygen, water, unfiltered, milligrams per liter	2001-03	2010-09	
pH, water, unfiltered, field, standard units	2001-03	2005-08	
Turbidity, water, unfiltered, monochrome near infra-red LED light, 780-900 nm, detection angle 90 +-2.5 degrees, formazin nephelometric units (FNU)	2001-03	2003-06	
Annual Statistics			
Temperature, water, degrees Celsius	2001	2010	
Discharge, cubic feet per second	1999	2013	
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius	2001	2010	
Dissolved oxygen, water, unfiltered, milligrams per liter	2001	2010	
pH, water, unfiltered, field, standard units	2001	2005	
Turbidity, water, unfiltered, monochrome near infra-red LED light, 780-900 nm, detection angle 90 +-2.5 degrees, formazin nephelometric units (FNU)	2001	2003	
Peak streamflow	2000-01-03	2011-09-26	11
Field measurements	1999-04-08	2014-05-09	104
Additional Data Sources	Begin Date	End Date	Count
Instantaneous Data Archive ***offsite***	1999-04-09	2007-09-30	390562
Annual Water Data Report (pdf) ***offsite***	2006	2013	8

Streamflow Measurements for the Nation

USGS 03260100 ELIJAH'S CREEK @ ELIJAH'S CREEK RD NR HEBRON, KY

Available data for this site Surface-water: Field measurements

Boone County, Kentucky
Hydrologic Unit Code 05090203
Latitude 39°04'47", Longitude 84°41'07" NAD83
Drainage area 4.03 square miles
Gage datum 759.08 feet above NGVD29

Output formats

[HTML table with channel data](#)
[HTML table without channel data](#)
[Tab-separated data with channel data](#)
[Tab-separated data without channel data](#)
[Graph of data](#)
[Reselect output format](#)

Meas. Number	Date	Time	Time Datum	Measurement Used?	Who	Measuring Agency	Stream flow (ft ³ /s)	Gage Height (ft)	Rating No.	Shift Adj. (ft)	% Diff.	CH Change (ft)	Meas. Duration (hr)	Meas. Rated	Control	Flow Adjust. Code
104	2014-05-09 08:16:30		EDT	Yes	JGT/BLM	USGS	0.92	1.42	4.1		0.00	-23.3	0.00	0.50	FAIR	MEAS
103	2014-04-16 17:41		EDT	Yes	MKL	USGS	2.88	1.53	4.1		-0.04	-1.4	0.00	0.50	POOR	MALT
102	2014-02-18 14:20:30		EST	Yes	MKL	USGS	30.2	2.80	4.1		0.00	-90.2	0.14	0.50	POOR	SICE
101	2013-11-19 16:23		EST	Yes	MKL	USGS	9.73	1.70	4.1		-0.06	-3.7	-0.01	0.75	FAIR	LGDB
100	2013-11-01 09:23:30		EDT	Yes	MKL/BLM	USGS	13.9	1.75	4.1		-0.06	0.0	0.02	0.50	FAIR	LGDB
99	2013-08-22 08:43		EDT	Yes	SMM/MKL	USGS	0.11	1.39	4.1		-0.06	0.0			FAIR	MOOB
98	2013-07-02 08:06:30		EDT	Yes	SMM/MKL	USGS	7.80	1.64	4.1		-0.04	2.1			GOOD	CLER
97	2013-04-30 17:55:30		EDT	Yes	MKL/ATR	USGS	1.14	1.47	4.1		-0.05	-2.6	0.00	0.60	POOR	CLER
96	2013-01-30 18:24:30		EST	Yes	SMM/ATR	USGS	19.1	1.87	4.1		-0.12	-1.0	0.00	0.40	FAIR	CLER
95	2012-10-15 17:05		EDT	Yes	MKL/SJS	USGS	0.73	1.43	4.1		-0.04	7.4	0.00	0.10	POOR	LGDB
94	2012-10-15 15:59		EDT	Yes	MKL/BLM	USGS	0.44	1.43	4.1		-0.04	-35.3	0.00	0.50	POOR	MOOB
93	2012-09-07 07:54		EDT	Yes	MKL	USGS	0.70	1.40	4.1		-0.01	2.9	0.00	0.25	POOR	MALT
92	2012-07-10 16:34		EDT	Yes	DJS	USGS	0.010	1.34	4.1		-0.04	42.9	0.00	0.01	POOR	LGDB
91	2012-07-10 16:28:51		EDT	Yes	DJS	USGS	0.010	1.34	4.1		-0.04	42.9	0.00	0.04	POOR	LGDB
90	2012-06-14 13:57:30		EDT	Yes	MKL/RWT	USGS	0.14	1.38	4.1		-0.06	100	0.00	0.12	POOR	LGDB
89	2012-06-14 13:26:16		EDT	Yes	MKL	USGS	0.043	1.38	4.1		-0.06	-33.8	0.00	0.43	POOR	LGDB
88	2012-04-05 17:45:30		EDT	Yes	ATR/MKL	USGS	0.73	1.40	4.1		-0.01	7.4	0.00	0.58	POOR	CLER
87	2012-04-05 17:40:49		EDT	Yes	BLM	USGS	0.53	1.40	4.1		-0.01	-22.1	0.00	0.15	POOR	CLER
86	2012-01-10 17:14:43		EST	Yes	MKL	USGS	0.77	1.42	4.1		-0.01	-22.2	0.00	0.07	POOR	CLER
85	2012-01-10 17:07:09		EST	Yes	MKL	USGS	1.02	1.42	4.1		-0.01	2.9	0.00	0.08	POOR	CLER
84	2011-10-04 12:11:57		EDT	Yes	H	USGS	0.74	1.40	4.1		-0.03	68.2	0.00	0.17	POOR	MOOB
83	2011-10-04 11:55:45		EDT	Yes	ZH	USGS	0.48	1.40	4.1		-0.03	9.1	0.00	0.14	POOR	MOOB
82	2011-06-30 16:42:03		EDT	Yes	DJR	USGS	0.92	1.44	4		0.03	-2.1			FAIR	CLER

Streamflow Measurements for the Nation

USGS 03260100 ELIJAH'S CREEK @ ELIJAH'S CREEK RD NR HEBRON, KY

Available data for this site

Boone County, Kentucky
Hydrologic Unit Code 05090203
Latitude 39°04'47", Longitude 84°41'07" NAD83
Drainage area 4.03 square miles
Gage datum 759.08 feet above NGVD29

Output formats

☐ HTML table with channel data
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☐ Tab-separated data with channel data
☐ Tab-separated data without channel data
☐ Graph of data

Meas. Number	Date	Time	Time Datum	Measurement Used?	Who	Measuring Agency	Stream flow (ft ³ /s)	Gage Height (ft)	Rating No.	Shift Adj. (ft)	% Diff.	GH Change (ft)	Meas. Duration (hr)	Meas. Rated	Control	Flow Adjust. Code
104	2014-05-09 08:16:30		EDT	Yes	JGT/BLM	USGS	0.92	1.42	4.1	0.00	-23.3		0.00	0.50	FAIR	MEAS
103	2014-04-16 17:41		EDT	Yes	MKL	USGS	2.88	1.53	4.1	-0.04	-1.4		0.00	0.50	POOR MALT	MEAS
102	2014-02-18 14:20:30		EST	Yes	MKL	USGS	30.2	2.80	4.1	0.00	-90.2		0.14	0.50	POOR SICE	MEAS
101	2013-11-19 16:23		EST	Yes	MKL	USGS	9.73	1.70	4.1	-0.06	-3.7		-0.01	0.75	FAIR LGDB	MEAS

	Time Datum	Measurement Used?	Who	Measuring Agency	Stream flow (ft ³ /s)	Gage Height (ft)	Rating No.	Shift Adj. (ft)	% Diff.	GH Change (ft)	Meas. Duration (hr)	Meas. Rated	Control
104	EDT	Yes	JGT/BLM	USGS	0.92	1.42	4.1	0.00	-23.3	0.00	0.50	FAIR	
103	EDT	Yes	MKL	USGS	2.88	1.53	4.1	-0.04	-1.4	0.00	0.50	POOR MALT	
102	EST	Yes	MKL	USGS	30.2	2.80	4.1	0.00	-90.2	0.14	0.50	POOR SICE	
101	EST	Yes	MKL	USGS	9.73	1.70	4.1	-0.06	-3.7	-0.01	0.75	FAIR LGDB	
105	EDT	Yes	MKL/BLM	USGS	13.9	1.75	4.1	-0.06	0.0	0.02	0.50	FAIR LGDB	
106	EDT	Yes	SMM/MKL	USGS	0.11	1.39	4.1	-0.06	0.0			FAIR MDDB	
107	EDT	Yes	SMM/MKL	USGS	7.80	1.64	4.1	-0.04	2.1			GOOD CLER	
108	EDT	Yes	MKL/ATR	USGS	1.14	1.47	4.1	-0.05	-2.6	0.00	0.60	POOR CLER	
109	EST	Yes	SMM/ATR	USGS	19.1	1.87	4.1	-0.12	-1.0	0.00	0.40	FAIR CLER	
110	EDT	Yes	MKL/SJS	USGS	0.73	1.43	4.1	-0.04	7.4	0.00	0.10	POOR LGDB	
111	EDT	Yes	MKL/BLM	USGS	0.44	1.43	4.1	-0.04	-35.3	0.00	0.50	POOR MDDB	
112	EDT	Yes	MKL	USGS	0.70	1.40	4.1	-0.01	2.9	0.00	0.25	POOR MALT	



Streamflow Measurements for the Nation

USGS 03260100 ELIJAH'S CREEK @ ELIJAH'S CREEK RD NR HEBRON, KY

Available data for this site:

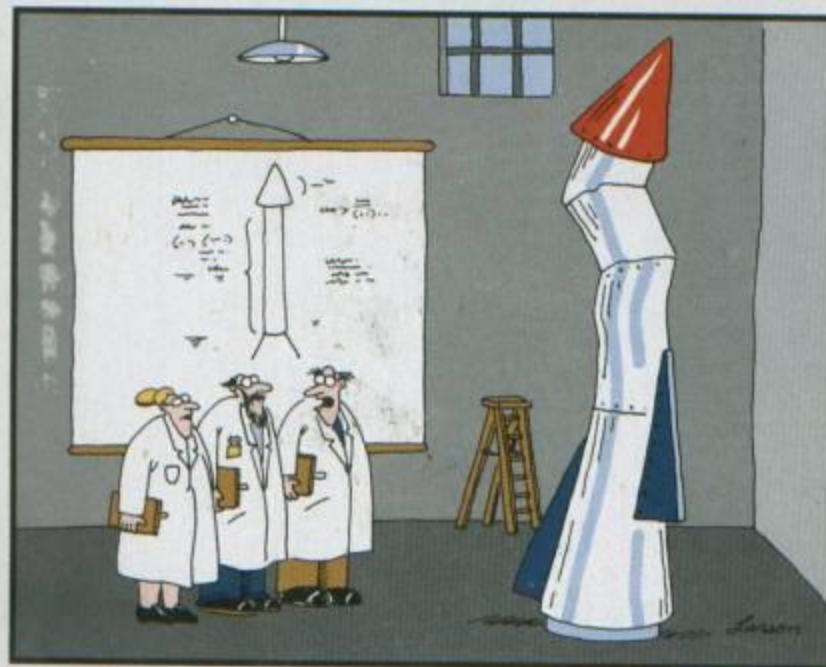
Boone County, Kentucky
Hydrologic Unit Code 05090203
Latitude 39°04'47", Longitude 84°41'07" NAD83
Drainage area 4.03 square miles
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- ☐ Graph of data
- ☐ Reselect data

Meas. Number	Date	Time	Time Datum	Measurement Used?	Who	Measuring Agency	Stream flow (ft³/s)	Gage Height (ft)	Rating No.	Shift Adj. (ft)	% Diff.	GH Change (ft)	Meas. Duration (hr)	Meas. Rated	Control	Flow Adjust. Code
104	2014-05-09	08:16:30	EDT	Yes	JGT/BLM	USGS	0.92	1.42	4.1	0.00	-23.3	0.00	0.50	FAIR		MEAS
103	2014-04-16	17:41	EDT	Yes	MKL	USGS	2.88	1.53	4.1	-0.04	-1.4	0.00	0.50	POOR	MALT	MEAS
102	2014-02-18	14:20:30	EST	Yes	MKL	USGS	30.2	2.80	4.1	0.00	-90.2	0.14	0.50	POOR	SICE	MEAS
101	2013-11-19	16:23	EST	Yes	MKL	USGS	9.73	1.70	4.1	-0.06	-3.7	-0.01	0.75	FAIR	LGDB	MEAS
100	2013-11-01	09:23:30	EDT	Yes	MKL/BLM	USGS	13.9	1.75	4.1	-0.06	0.0	0.02	0.50	FAIR	LGDB	MEAS
99	2013-08-22	08:43	EDT	Yes	SMM/MKL	USGS	0.11	1.39	4.1	-0.06	0.0			FAIR	MDDDB	MEAS
98	2013-07-02	08:06:30	EDT	Yes	SMM/MKL	USGS	7.80	1.64	4.1	-0.04	2.1			GOOD	CLER	MEAS
97	2013-04-30	17:55:30	EDT	Yes	MKL/ATR	USGS	1.14	1.47	4.1	-0.05	2.6	0.00	0.60	POOR	CLER	MEAS
96	2013-01-30	18:24:30	EST	Yes	SMM/ATR	USGS	19.1	1.87	4.1	-0.12	-1.0	0.00	0.40	FAIR	CLER	MEAS
95	2012-10-15	17:05	EDT	Yes	MKL/SJS	USGS	0.73	1.43	4.1	-0.04	7.4	0.00	0.10	POOR	LGDB	MEAS

Questions?



"It's time we face reality, my friends. ...
We're not exactly rocket scientists."